S. HRG. 107–696, PT. 2

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2003

HEARING

BEFORE THE

COMMITTEE ON ARMED SERVICES
UNITED STATES SENATE

ONE HUNDRED SEVENTH CONGRESS

SECOND SESSION

ON

S. 2225

TO AUTHORIZE APPROPRIATIONS FOR FISCAL YEAR 2003 FOR MILITARY ACTIVITIES OF THE DEPARTMENT OF DEFENSE, TO PRESCRIBE MILITARY PERSONNEL STRENGTHS FOR FISCAL YEAR 2003, AND FOR OTHER PURPOSES

PART 2
SEAPOWER

MARCH 5, 19, APRIL 9, 2002

Printed for the use of the Committee on Armed Services

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DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2003

TUESDAY, MARCH 5, 2002

U.S. SENATE,
SUBCOMMITTEE ON SEAPOWER,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

MARINE CORPS MODERNIZATION PROGRAMS

The subcommittee met, pursuant to notice, at 3:30 p.m. in room SR–222, Russell Senate Office Building, Senator Edward M. Kennedy (chairman of the subcommittee) presiding.

Committee members present: Senators Kennedy, Sessions, McCain, and Collins.

Majority staff member present: Creighton Greene, professional staff member.

Minority staff members present: Gary M. Hall, professional staff member; Ambrose R. Hock, professional staff member; and Thomas L. MacKenzie, professional staff member.

Staff assistants present: Dara R. Alpert and Andrew Kent.

Committee members' assistants present: Menda Fife and Christina L. Martin, assistants to Senator Kennedy; Marsall A. Hevron, assistant to Senator Landrieu; Christopher J. Paul, assistant to Senator McCain; Arch Galloway II, assistant to Senator Sessions; Kristine Fauser, assistant to Senator Collins; and Derek Maurer, assistant to Senator Bunning.

OPENING STATEMENT OF SENATOR JEFF SESSIONS

Senator SESSIONS. Our chairman Senator Kennedy has asked me to start this hearing on time. He will join us shortly. He is chairing an important committee hearing on cloning and other issues as chairman of the Senate Health, Education, Labor, and Pensions Committee.

So in the spirit of bipartisanship, which has really been exemplified on this subcommittee by Senator Kennedy's leadership, I want to welcome our subcommittee to the first seapower hearing of this budget review cycle. We are delighted to welcome the Commandant of the Marine Corps, General Jim Jones, to kick off our seapower hearings. It is my pleasure once again to serve as the ranking member on this subcommittee. I thank Senator Kennedy for his leadership. He has scheduled hearings that will explore the key

issues facing us while exercising oversight of the many seapower procurement and research and development programs.

It is prudent for us to begin our hearings by asking the big picture question: What is it that our military forces are supposed to be able to accomplish? The Secretary of Defense answered this in September 2001 in the Quadrennial Defense Review, which states the four defense policy goals as: assuring our allies and friends; dissuading future military competition; deterring threats and coercion against United States interests; and if deterrence fails, decisively defeat. The Navy and Marine Corps team are vital to carrying out all four of these policy goals.

Seapower is another way to describe the capabilities the Navy and Marine Corps have to meet the challenge described in the QDR of "projecting and sustaining U.S. forces in distant anti-access environments." The Secretary of the Navy has reaffirmed a commitment to remain forward-engaged while developing future capabilities.

Forward presence enabled the regional commander to initiate, on relatively short notice, Operation Enduring Freedom using three aircraft carrier battle groups and two amphibious ready groups with an embarked Marine Corps brigade command element. The performance of our men and women in uniform and from our government agencies in Operation Enduring Freedom in fighting terrorism here at home has been superb.

There are a number of issues that I look forward to exploring today with our witnesses, including the Marine Corps's role in fighting terrorism, organic and naval gunfire support, amphibious assault vehicles, and ships that provide tactical lift, command and control, and logistics. In addition, new Marine Corps concepts may require changes in equipment and operational capabilities.

I remain committed to ensure the MV–22 Osprey program implements the recommendations of last year's review panel to incorporate safety, reliability, and maintainability fixes.

I join our chairman in welcoming General Jones, the Commandant of the Marine Corps, and express my sincere appreciation to the Commandant for all the members of the Marine Corps, active duty, Reserve, civilian, and supporting family members for their sacrifices and continuing services to our great country.

General Jones, thank you for being with us. This is the first of a series of important hearings we will be having on how we deal with seapower, of which the Marine Corps is a big part. But first, if you would tell me, what is the state of the Corps? How do you feel about the morale and readiness and just the general feel for the Corps at this point in time?

[The prepared statement of Senator Sessions follows:]

PREPARED STATEMENT BY SENATOR JEFF SESSIONS

It is my pleasure to serve, once again, as ranking member of the Seapower Subcommittee. I thank Senator Kennedy for his leadership of this subcommittee. He has scheduled hearings that will explore the key issues while exercising oversight of the many Seapower procurement and research and development programs.

It is prudent for us to begin our hearings by asking the big picture question: What is it that our military forces are supposed to be able to accomplish?

The Secretary of Defense answered this question in the September 2001 Quadrennial Defense Review (QDR) which states the four defense policy goals are:

1. Assuring allies and friends.

2. Dissuading future military competition.
3. Deterring threats and coercion against U.S. interests; and
4. If deterrence fails, decisively defeat.

The Navy and Marine Corps team are vital to carrying out all four of these policy goals.

The QDR also notes that "access" will be a key issue in the future and our ability to use land-basing of forces may be limited. The Commandant of the Marine Corps stated, "Sea-basing affords us the flexibility of employing robust air and ground forces at a time and place of our choosing." The Commander in Chief of the Atlantic Fleet recently stated, "We can fight here or over there, I'd rather fight them over there."

Seapower is another way to describe the capabilities the Navy and Marine Corps have to meet challenge described in the QDR of "projecting and sustaining U.S. forces in distant anti-access environments," in other words, fighting them over there. The Secretary of the Navy has reaffirmed a commitment to remain forward engaged while developing future capabilities.

Forward presence enabled the regional commander to initiate, on relatively short notice, Operation Enduring Freedom using three aircraft carrier battle groups and two amphibious ready groups with an embarked Marine Corps brigade command element. It is noteworthy that the Marine Corps brigadier general who commanded the brigade command element, was the first Marine to command a naval task force, Task Force 58. This accomplishment is a testament to the close cooperation of the Navy and Marine Corps leadership. The performance of our men and women in uniform and from our government agencies in Operation Enduring Freedom and fighting terrorism here at home has been superb.

The U.S.S. *Kitty Hawk's* serving as a forward operating base for special operations forces and the ability of the *Peleliu* and *Bataan* Amphibious Ready Groups and 15th and 26th Marine Expeditionary Unit (Special Operations Capable) to use Marine Corps aircraft to lift sea based Marines 400 miles into Afghanistan are excellent examples of transformational forces and platforms.

However, the QDR and Operation Enduring Freedom are not the end, they are the beginning. The Secretary of the Navy has been directed by the Secretary of Defense to develop new concepts of maritime pre-positioning, high-speed sealift, and new amphibious capabilities for the Marine Corps. In addition, he has been tasked to shift some to the Marine Corps' afloat pre-positioned equipment from the Mediterranean toward the Indian Ocean and Arabian Gulf and to explore the feasibility of conducting Marine Corps training for littoral warfare in the Western Pacific. The Marine Corps has a memorandum of understanding with the Special Operations Command which will provide the framework for future development and strengthening of relations between the two organizations.

There are a number of issues I look forward to exploring today with our witness including the Marine Corps' role in fighting terrorism, organic and naval gun fire support, amphibious assault vehicles, and ships that provide tactical lift, command and control, and logistics. In addition, new Marine Corps concepts may require changes in equipment and operational capabilities. The Marine Corps' warfighting lab has led the way in quickly evaluating methods and equipment to support expeditionary maneuver warfare. Integrated logistics, strategic agility, operational reach, and tactical flexibility issues are fundamental to understanding unique capabilities of the Marine Corps.

I am well aware of the validated requirement for the MV–22 Osprey, and the improved capability it will deliver in speed, range, and payload. However, I remain committed to ensure the program implements the recommendations of last year's review panel to incorporate safety, reliability, and maintainability fixes.

I look forward to exploring these issues with our witness today as we review Marine Corps requirements for equipment and force structure to meet today's and future challenges.

I join our Chairman in welcoming General Jones, the Commandant of the Marine Corps, and I express my sincere appreciation to the Commandant for all members of the Marine Corps: active duty, Reserve, civilian, and supporting family members for their sacrifices and continuing service to our great country.

STATEMENT OF GEN. JAMES L. JONES, JR., USMC, COMMANDANT, UNITED STATES MARINE CORPS; ACCOMPANIED BY LT. GEN. ROBERT MAGNUS, USMC, DEPUTY COMMANDANT OF PROGRAMS AND RESOURCES

General JONES. Thank you, Senator, very much for that kind welcome. To you and the chairman, I want to express my appreciation for the opportunity to be here today to talk about marines and their families and how we feel about ourselves. If you do not mind, I have a very short opening statement that will address that question and I will ask that it be entered for the record if that is okay with you.

Senator SESSIONS. That would be wonderful.

General JONES. Senator, in February some of the members of this subcommittee and I had the privilege of attending a conference on international security in Munich, Germany. I remembered a statement uttered by the Secretary General of NATO just before he gave his speech at this conference. He said: "Diplomacy is a nation's first line of defense, but it is a wise diplomat who pays attention to his nation's second line of defense in case the first line fails." What we represent today is the second line of defense and it is in that context that I address you.

So I would like to talk a little bit about some of the great things that have happened as a result of the 2002 budget first and the actions of this subcommittee and the full committee in the Senate authorization process. It was the best readiness budget we have had in about 10 years and it really impacted significantly on the health and vitality of marines and their families.

As a result, marines today are extremely secure in their identity, who they are and what they do. We see ourselves as a sea-based rotational expeditionary combined arms force. Those words are very important and each one of them has an awful lot behind them, but that is who we are and that is what we do. We are characterized by our association with our naval heritage and the power of our teamwork with the United States Navy. Together, we provide immediate response, a persistency of application, and a sustainability of effort that is, in my humble opinion, unmatched, unequalled in any other armed force in the world.

The cornerstone of the Marine Corps's fighting capability is found in the Marine Corps expeditionary brigade. This is the central piece and central to our success in Operation Enduring Freedom that you referred to just a moment ago.

Second, the Marine Corps is culturally stable, as proven not only by our success in recruiting, but astoundingly successful in retention for the professional portion of our Corps. As I have mentioned before the full committee before, 60 percent of all marines are always on their first enlistment, which means that the average age of a United States Marine is always somewhere around 24 years old.

The 2002 budget also supported our families, and supported our single marines. We have made great progress in revitalizing our housing, our health care, and our pay and allowances, which our troops and our civilians so well deserve.

Point three about the 2002 budget, it has emphasized, I think, some unique characteristics that belong to the Marine Corps. We

draw our strength from our partnership with the Navy. Operation Enduring Freedom dramatically highlighted the fact that we are no longer just an amphibious force in the classic World War II sense, but we are truly an expeditionary force that can project combined arms up to and beyond 600 miles inland in a landlocked country if necessary and sustain it for a considerable period of time.

Operation Enduring Freedom answered the challenge to the specters of the past on the issue of sovereignty, which is going to be a difficult problem for us nationally in the future as we pursue this global war on terrorism. Access is important and naval platforms contribute to a solution to the access challenge, as demonstrated in Afghanistan, and this was a timely solution.

We also saw that the ability of all of our forces to operate together is now a reality. Those who think that the services spend so much time squabbling with one another over resources that they do not get anything done in that context, they are simply misinformed. This was a seamless integration between Special Operations Forces, conventional forces, roles and missions of each service being brought to the fore, and partnership on the ground, that clearly resulted in strategic and tactical successes that we should all take great pride in, because it brought about enormously good results in a remarkably short period of time.

The 2003 budget request for the Marine Corps is a budget that was carefully put together in partnership with the Secretary of the Navy and the CNO. It continues to take us down the path of emergence from the years of failure to recapitalize and modernize. It adds $1.3 billion to our military personnel account, $1.5 billion to our procurement and R&D account, and another $1.5 billion to operations and maintenance.

It is reduced by about $98 million from the 2002 MILCON budget, but it is still better than the 2001 military construction account and years preceding that. As a matter of fact, we have been able to add 20 percent within our MILCON budget for family housing, which we are very excited about and will serve to modernize a lot of our housing throughout the Marine Corps.

It also provides for a pay raise, a targeted pay raise, career prepaid enhancements, reduces out of pocket expenses for housing from 11.3 percent to 7.5 percent, with the goal of achieving zero by 2005, which would be a tremendous accomplishment for our sailors and marines. It provides for 25 percent real program growth over 2001 baseline for operating forces, 11 percent real program growth over 2001 baseline for our bases and stations, and it provides for 90 percent of the Marine Corps' executable requirements for depot maintenance. So it is, in fact, a budget that not only sustains modernization, but also gets us to the transformation aspect of the Secretary of Defense's programs.

So in summary, Senator, it is a great time, I think, to be a United States Marine. We very much appreciate this subcommittee's support and clear support that will enable the Marine Corps to do its share with regard to transformation, which I would be happy to talk about in some detail if you would like. Your support gives us a clear sense that marines are appreciated. It translates very clearly to a joyous homecoming such as we had in California yesterday with the return of the 15th Marine Expeditionary Unit,

Special Operations Capable, that returned from its involvement in Afghanistan. We continue to feel that the Corps is on the move in the right direction and we are eagerly awaiting the future.

Thank you.

[The prepared statement of General Jones follows:]

PREPARED STATEMENT BY GEN. JAMES L. JONES, JR., USMC

Chairman Kennedy, Senator Sessions, distinguished members of the subcommittee; it is my pleasure to report to you on the state of your Marine Corps. On behalf of all Marines and their families, I want to thank the subcommittee for your continued support. Your commitment to increasing the warfighting and crisis response capabilities of our Nation's Armed Forces and to improving the quality of life for our men and women in uniform is central to the strength of your Marine Corps. As a result, your Corps was ready when called upon on September 11, 2001. We thank you for your effort in ensuring that Marines and their families were poised to respond to the Nation's call in the manner Americans expect of their Corps.

The direction of the Corps is confident, clear, and unambiguous. The Corps understands its role as a force in readiness but also realizes that the world is changing. For 226 years, Marines have always been innovators in order to be ready for the next war. To assure success, we continually strive to be capable of rapidly adapting to new circumstances inasmuch as we recognize that the future is unpredictable.

The President's Fiscal Year 2003 Budget enables the Navy-Marine Corps Team to fight today's war on terrorism and transform itself to be ready for future challenges. This budget funds our 4th Marine Expeditionary Brigade anti-terrorism efforts, includes pay raises and new combat uniforms for our marines and provides increased health care for our retirees. It also allows us to harness the new capabilities found in tilt-rotor technology and Short Take-Off and Vertical Landing aircraft. We have increased funding for our operating forces in day-to-day operations, training, equipment maintenance, and force protection. Additionally, our bases and stations are sustained by the President's budget, which improves such critical areas as family housing and bachelor quarters. Furthermore, this budget's investments in ground equipment, ammunition and research and development will help us recover from prior year shortfalls.

Marines have a vision for the future, and we are moving forward with the modernization and transformational efforts needed to make this vision a reality. We fully understand that our vision cannot be achieved independently of our sister Services. Each of us has our own critical role to play in providing for our collective security. It is important that each of our contributions be, simultaneously, both unique and complementary. In particular, the Corps stresses the importance of our key partnership with the Navy. The Navy-Marine Corps Team has never been stronger, nor more necessary for our country. In fact, the essence of our combined power is our teamwork.

Americans have relied upon the Navy and Marine Corps Team to protect and promote the interests of the Nation since our creation by the Continental Congress in 1775. After helping to win American independence, Naval Services acted time and again to ensure our freedom and set in motion the ascendancy of our Nation as a global power under the banner of democracy and its potential. During the darkest hours of our history, the Navy and Marine Corps Team has remained the most useful and most frequently used expression of our Nation's interests in forward presence and crisis response. Those of us who are privileged to serve in the Naval Services today have inherited a legacy that we are dedicated to preserving. Together we will continue to flourish, due to steadfast appreciation of our heritage and a commitment to a tradition of continuous innovation and change.

Teamwork is the bond that forever joins our Services and is the key to our enduring success. We have progressed from wooden ships of sail, with embarked Marines, to modern networked Naval expeditionary strike forces that are forward deployed and full spectrum capable. We are a combined-arms force capable of ensuring America's access, including sustainable forcible entry operations to distant inland areas and austere locations. Always moving forward, we are incorporating advanced technologies to increase our capabilities to include exploiting the tremendous potential of sea control and power projection. Our innovation is not limited to equipment and weapons systems but is also reflected in the development of new operational concepts and organizational evolution. When crises emerge, the Nation can depend on the Navy and Marine Corps Team.

Today, I will describe the Marine Corps' relevance to the current security environment as well as our future role as America's sea-based, expeditionary, combined-

arms force. I will also address the Marine Corps' role as the Nation's medium-weight expeditionary force, bridging the gap between America's Special Operations Forces and the Army's critical land war-winning capability. The preponderance of this statement will focus on the Marine Corps' transformation plans and our vision for the 21st century.

I. The Marine Corps' Relevance: Power Projection from the Sea-base

For the United States to provide its citizens with security and prosperity at home and abroad it must continue to lead the effort in maintaining international stability. One only need consider the events of September 11, and the fact that 30 percent of the United States Gross Domestic Product is directly related to global trade, to realize that America's well-being is inextricably linked to the international order. America must continue to establish and lead efforts to maintain stability around the world. This challenge requires the integrated application of all elements of national power—economic, political, diplomatic, cultural, intellectual, technological, and military. Working in concert with the other components of national power, our Armed Forces perform a vital role in establishing and maintaining conditions that directly affect global stability and America's security and prosperity. History shows that our men and women in uniform play a pivotal role in our Nation's international credibility. It is not an exaggeration to claim that our Nation's most important gift to world order is found in the service of our young men and women in uniform. Before anything good happens in the world, they are there establishing the framework for peace and stability.

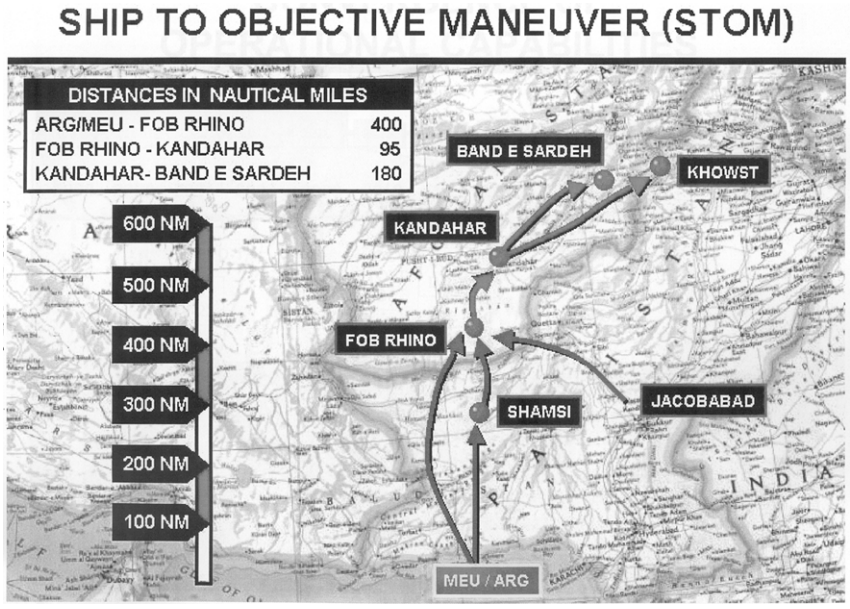
Inasmuch as global stability is intrinsically tied to America's relationship with other nations in the world community, the United States benefits significantly from military to military relationships around the globe. However, as nations continue to raise issues of sovereignty, especially during a crisis, we must find new ways to conduct our Nation's necessary engagements and have the means to respond to crisis without being excessively restricted by geo-political issues. In the 21st century, we are likely to see a change in the number and type of large, quasi-permanent American bases around the world as defined by the post-Cold War era. We must begin to develop alternatives to ensure that we are able to maintain our peacetime presence and our crisis response capabilities. 21st century basing initiatives are issues that will have to be addressed in the near future.

We cannot deter aggression, nor defeat future adversaries, solely with military capabilities based at home. Regional engagement requires presence, and there is no such thing as truly effective "virtual presence." The inherent mobility and flexibility of Naval forces in providing off-shore basing options is an effective counter to increasing limitations to access and basing rights. America's stabilizing influence overseas is contingent upon our ability to deploy, employ, and sustain persistent military forces from the sea. Indeed, the Navy-Marine Corps Team's sea-based power projection capabilities are a cornerstone of our military's contribution to our enduring security and that of our allies.

Sea-based capabilities provided by the Navy-Marine Corps Team are an important means for America to cultivate its relationship with the world, providing the advantage, both in peacetime and in crisis response operations, of being able to control the size of our "footprint" ashore. Sea-basing also provides the operational advantages of force protection, operational maneuver space, and the sanctity of sovereign platforms from which we can engage adversaries.

The Navy-Marine Corps Team's sea-based capabilities have been re-validated over the past several months. In Afghanistan, sea-based Naval forces provided a significant portion of tactical air sorties and the initial deployment of major, sustained ground force presence, reaching over 600 miles inland. [See Figure 1]

Operation Enduring Freedom has also proven the value of the Navy-Marine Corps Team as an important element of a Joint Force.



[FIGURE 1]

Important contributions were made through Marine integration with Special Operations Forces, the Army, and the Air Force in the areas of Intelligence, Surveillance, and Reconnaissance capabilities to long-range strike and close air support capabilities. The Marine Corps has demonstrated that the Marine brigade—a flexible, medium-weight, combined arms, expeditionary force—is not only responsive, but also a full and effective partner in Joint and Coalition operations.

II. The Marine Corps' Role: A Scalable, Sustainable, Forcible Entry Force

The Marine Corps provides our Nation and its Joint Force Commanders the full scope of military capabilities required to respond to the broad spectrum of threats and potential missions that confront America's Armed Forces today and in the future. For 6 percent of the Department of Defense's budget, the Marine Corps provides 20 percent of our Nation's ground combat maneuver battalions, tactical fixed-wing aircraft squadrons, and attack helicopter squadrons, as well as one-third of its active duty combat service support.

If there is a lesson to be learned from ongoing operations in Afghanistan, it is that there is tremendous power and capability in the diversity of our Armed Forces today. Joint Force Commanders must have the fullest possible range of options and capabilities available in order to apply the desired effects, both lethal and non-lethal, in any given scenario. Indeed, the flexibility and robustness of America's Armed Forces is a product of the varied and unique capabilities each Service contributes to our Nation. Accordingly, our capabilities need to be complementary, not duplicative, if we are to provide the diverse and versatile capabilities needed to confront the uncertain threats of the future. Together, our Joint force forms a mosaic of integrated capabilities to defeat the myriad threats and challenges we may face today and tomorrow. Enhancing these capabilities across the force is in the national interest.

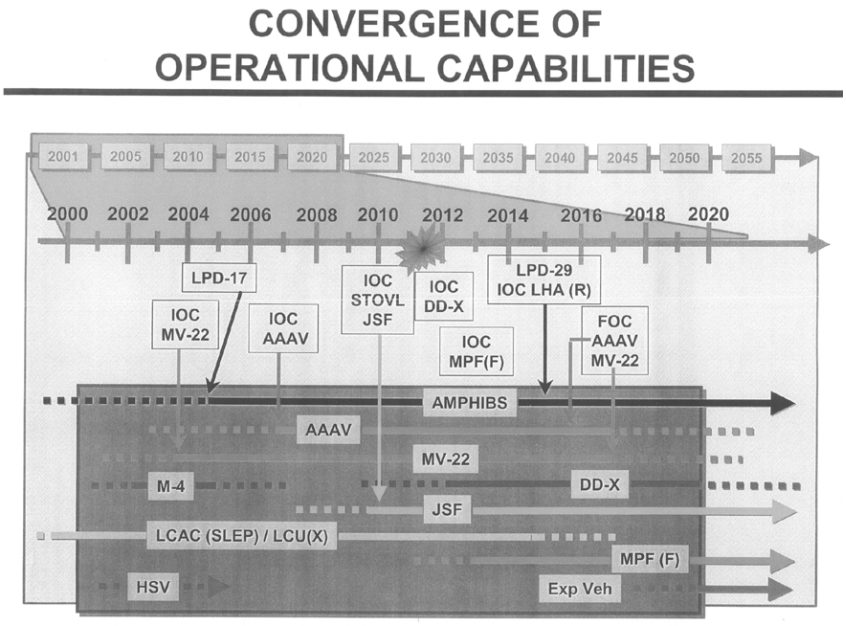
Marine Air-Ground Task Forces have proven their utility in meeting challenges and exploiting opportunities. The versatility of the Marine Expeditionary Brigade is emblematic of the scalability of our Marine Air-Ground Task Forces. In size and capability, these brigades are midway between our "light" Marine Expeditionary Units and our "heavy" Marine Expeditionary Forces. Furthermore, our Marine Expeditionary Brigades can either deploy on amphibious shipping or be airlifted into a theater of operations to link up with equipment and supplies aboard Maritime Prepositioning Ships.

While the global war on terrorism has demonstrated the current capabilities of the Navy-Marine Corps Team, our continuous transformation and modernization promise even greater future capabilities for the Marine Corps. Transformation is an ongoing process, however, not an end-state. It spans decades of innovation and experimentation. It is also not limited to technology, but includes change in our organizational structure, operational concepts, and business practices.

The Marine Corps has always been at the forefront of transformation and innovation. Throughout our history, the Marine Corps has changed and evolved—from ship security, to naval constabulary, to light infantry, to an amphibious assault force, to an air-ground expeditionary team. In the past, our development of close air support, amphibious warfare, vertical envelopment, Short Take-Off and Vertical Landing technology, and maritime prepositioning have benefited our Joint warfighting capability. Today, the Marine Corps remains true to its warrior culture and continues in a tradition of change. Drawing on our history of transformation, the Marine Corps is moving forward with new concepts, innovation, and exciting experimentation. Our focus is on the creation of new capabilities, which will yield the operational advantages we seek to have in dealing with future conflicts.

III. The Marine Corps' Transformation: Concepts, Technologies, and Organizations

Although many think of transformation primarily in terms of weapons systems, true transformation results from a synthesis of new technologies with strategic vision, revolutionary operational concepts, and agile, adaptive organizations. Clearly, we must harness the potential military benefits of rapid advances in technology. The V–22 Osprey is but one example of the potential of proven transformational technology. The path to transformation involves a robust program of experimentation with new concepts, capabilities and operational prototypes while actively pursuing forward-looking science and technology efforts. As we experiment and introduce new capabilities, we will rapidly mainstream the changes into our ready forces. [See Figure 2]



[FIGURE 2]

A. Transformation of Operational Concepts and Better Business Practices

Technological innovation plays a paradoxical role in military transformation. With each problem it solves, technological innovation tends to introduce new challenges and opportunities. Operational concepts can offset these tensions by finding the

means to capitalize on technological strengths and also guard against creating new weaknesses. In light of heightened fiscal awareness and the need to be effective with our resources, we must reform our business practices to maximize available resources and develop more expedient means of fielding programs and equipment. With this in mind, the Marine Corps is committed to transforming its operational concepts and business practices.

The ongoing process of conceptual change is embodied in the recent publication of our overarching concept, *Expeditionary Maneuver Warfare.* It is the foundation for the way the Marine Corps will conduct operations in the 21st century. *Expeditionary Maneuver Warfare* is the union of our core competencies, maneuver warfare philosophy, expeditionary heritage, and the concepts by which we organize, deploy, and employ forces. It emphasizes the unique and proven capabilities the Marine Corps provides Joint Force Commanders and the synergy created when leveraged with the complementary capabilities of other Services and agencies. These capabilities translate into power projection designed to promote global security and reassure our allies and friends, while deterring and defeating adversaries and potential foes.

Central to our conceptual transformation is the potential power represented in a future integrated sea-base. At-sea arrival and assembly, selective off-load, and at-sea reconstitution capabilities stand to revolutionize the way Naval forces project power and influence around the globe. Our evolving logistics concepts promise indefinite sustainment of Marine forces, both afloat and ashore. As well, Marine forces afloat typically rely upon the Command, Control, Communications, and Computer (C^4) capabilities aboard amphibious shipping to provide critical reach-back connectivity to deployed elements of the Marine Air-Ground Task Force, and communications with Joint and multinational forces. These afloat C^4 capabilities are crucial to the success of sea-basing and to achieving the full potential of Naval power projection.

The Marine Corps' sea-basing strategy is yet another illustration of continued transformation in operational concepts. Recognizing the increasing limitations on future basing potential of American forces overseas and the simultaneous need for the United States to maintain a forward presence, the Navy and the Marine Corps are developing a forward presence strategy as an extension and augmentation of our concept of sea-basing. Sea-basing is the formation of Joint assets at sea to project and sustain combat power ashore, while reducing or eliminating our landward logistics footprint during combat operations. The sea-based presence strategy boosts forward engagement during peacetime by increasing the number of countries that we may visit without being permanently stationed at large fixed-bases in host nations. Marines can deploy from country to country and advance diplomatic and informational efforts through military-to-military relations, small unit training, liaison exchanges, and exercises. III Marine Expeditionary Force's annual Cooperation Afloat Readiness and Training in the Asia-Pacific region is an illustration of this concept.

In addition to codifying overarching conceptual innovations, the Marine Corps is adjusting its tactics, techniques, and procedures to better support conceptual change. Marine Aviation Weapons and Tactics Squadron–1 is adapting tactics, techniques, and procedures for the employment of aviation operations in urban terrain—a vital, yet challenging environment today and in the future. Advancements have been made in target selection and tracking, weapon selection and employment, friendly unit position identification, command and control, and staff planning. Likewise, the Marine Corps is actively engaged in the development of the underlying concepts of Network Centric Warfare for Naval expeditionary forces. We are exploiting state-of-the-art information and networking technology to improve situational awareness and to integrate widely dispersed sensors, forces, and weapons. Network Centric Warfare will allow commanders to achieve mission objectives rapidly and decisively by concentrating the combined fire and maneuver of Naval forces afloat and ashore at decisive locations and times. Similarly, the Marine Corps led Joint Non-Lethal Weapons Directorate is forging the way for the development of non-lethal technologies, as well as the tactics, techniques, and procedures for effectively employing their effects. Congressional funding of the Non-Lethal Technology Innovation Center at the University of New Hampshire will continue to provide further stimulus for the experimentation and formulation of doctrine that guides the tactical use of these new weapons.

Just as it is transforming its doctrine, the Marine Corps is also transforming its business practices. Our readiness is a reflection of balancing the demands of current requirements around the globe with the imperative to invest and be prepared for the future. This balance can—over the long haul—be achieved only if resources are reallocated from overhead and support activities to our fighting forces. To accomplish this reallocation of resources, we are adopting better business practices to achieve greater cost-effectiveness. There are several different avenues that the Ma-

rine Corps is taking to make this happen. We are streamlining organizations to eliminate redundancy and maximize integration. We are also reducing excess support structures to free resources and focus on core competencies.

To transform our business practices, the Marine Corps must increasingly rely on business intelligence and associated technologies promoting access to information. We consider information to be a strategic asset, and by assuring access to information, we will improve the operational agility of the Marine Corps. Our efforts to promote enterprise management of information technology confirm our need for a common infrastructure that includes a shared data environment, realignment and consolidation of many of our information systems, and the search for cost-effective strategies.

Commercialization, privatization, and out-sourcing are among the methods the Marine Corps has used to reduce costs, but ultimately it is competition between public and private sources that has led to increased savings. The Marine Corps has initiated competition between government sources and private sector commercial sources for a broad number of activities, best seen in the Marine Corps' application of such competition vis-&-vis its bases and stations. To operate our 15 major installations—essentially providing the range of support services typical of a municipality—a labor force of approximately 20,000 marines and 14,000 civilians are employed. One of the processes we have used in these competitions to save money is Activity-Based Costing and Management. This process provided our installation commanders information that enabled them to save over $30 million last year by analytically measuring the costs of particular work and evaluating the performance of that work.

Another example of turning to the private sector and using competition to bring down costs is the success of our new camouflage utility uniform. The uniform was created, tested, produced, and fielded by the Marine Corps—with the use of a new digital camouflage design technique—through a single source vendor, yielding a product that is superior in quality, comfort, and cost to that in existence today. We are extremely pleased with this innovative uniform that not only costs less in the long run, but is a product improvement benefiting our marines. All of this was achieved within a 1 year period.

Just as the Marine Corps' new utility uniform is an example of both tactical and business innovation, so too the transformation of operational concepts and business practices are seen together in our Integrated Logistics Capability. The Integrated Logistics Capability is redefining and realigning our supply and maintenance process by providing our logisticians with greater awareness of equipment status, increasing their capacity to more rapidly and effectively respond to logistical requirements on the battlefield. The simple objective of our Integrated Logistics Capability is to avoid weighing down the warfighters with the requirement to haul, protect, and administer massive amounts of supply material. The foundation of this concept and business practice is a revolutionary change in military methodology: shifting from massive inventories to small inventories. With the use of new technologies and practices, proven in the private sector, the Corps will, in essence, create a "new order" for its logistics enterprise and undertake the revolutionary changes necessary to ensure that it continues to be the premier fighting force in the world. Second Force Service Support Group at Camp Lejeune, North Carolina, is currently testing many of these new processes in a year long "proof of concept" to validate the direction in which we are heading. These efforts will allow Marine logisticians to support the battlefield of the 21st century with a smaller logistical footprint in a more cost-effective manner.

B. Transformation and Modernization Through Harnessing Technologies

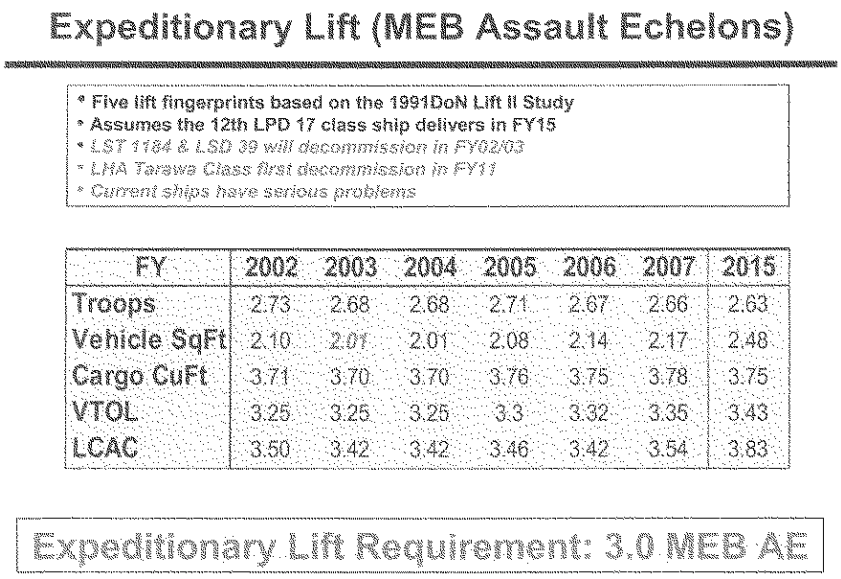
With the foundation of requirements drawn from its new concepts, the Marine Corps is transforming its weapons systems and assets throughout the five elements of our Marine Air-Ground Task Forces—our ground, aviation, logistics, and command elements, as well as our supporting establishment. The following examples are but a few of our transformational and modernization efforts. Many of our investments involve modernization of existing capabilities vital to effectively and efficiently fulfill our core competencies. A more comprehensive description of the Marine Corps' entire acquisition program can be found in the Marine Corps' *Concepts & Issues: Forging the Future Marine Corps.*

Amphibious Shipping for Sea-basing

We are a maritime nation and we must capitalize on this part of our national character to ensure that we are ready for the challenges that are over the horizon. The requirement for our amphibious shipping remains the linchpin of the Corps' ability to influence the international security landscape, project power, and protect

the Nation's interests during peacetime and crises. While it has long been recognized that we require an amphibious ship force structure capable of simultaneously lifting the assault echelons of three Marine Expeditionary Brigades, today's amphibious lift can support only two-thirds of this requirement in certain aspects of the lift footprint. I strongly recommend that we commit to redress this shortfall as a matter of urgent priority.

We are grateful for your support in replacing four classes of older ships with the new LPD–17 *San Antonio* amphibious ship class. Delivery of these 12 ships to the fleet is currently planned to be complete in 2015. However, we remain concerned about further schedule slippage in the LPD–17 program. Such delays compromise our ability to fulfill our global forward presence responsibilities and must be avoided. Similarly, we are concerned with replacing the LHA–1 *Tarawa*-class ships. Considering the extended time-frame for ship design, construction, and delivery, we need to ensure now that we are ready to replace the *Tarawa*-class when they reach the end of their 35 year service life starting in 2011. [See Figure 3]

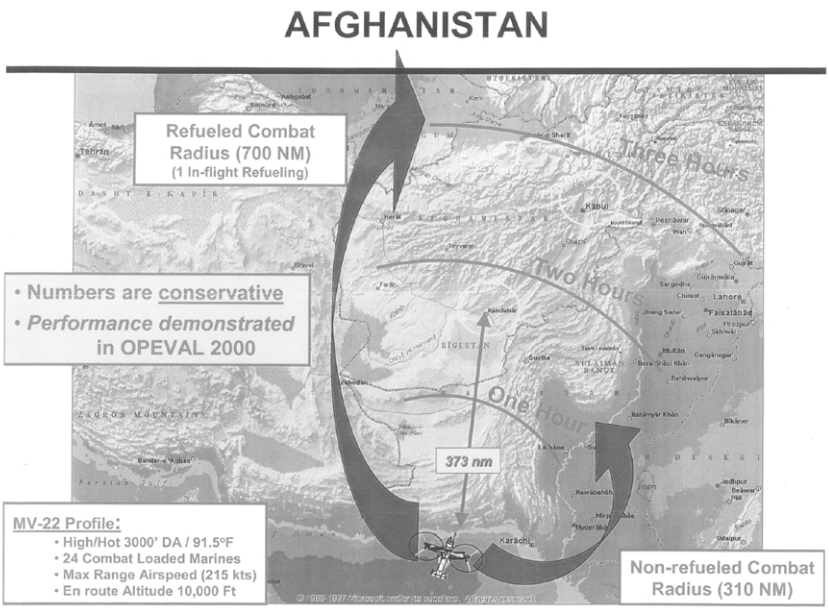


[FIGURE 3]

The leases of our current fleet of Maritime Prepositioning Ships (MPS) will expire in fiscal year 2009, fiscal year 2010, and fiscal year 2011. The development of advanced Maritime Prepositioning capabilities, High Speed Vessel platforms, and new lighterage vessels, will significantly increase the strength and flexibility of our sea-based expeditionary operations. The marriage of a modern amphibious fleet with modern Maritime Prepositioning Shipping capable of hosting at-sea arrival and assembly of forces will minimize the requirement for access to secure ports and airfields, and give our Nation an unmatched asymmetrical advantage in projecting power.

Tilt-Rotor Aircraft

The V–22 Osprey remains the Corps' number one aviation acquisition priority. Recent actions in Central Asia have only reinforced the immediate need for this truly transformational capability. [See Figure 4]



[FIGURE 4]

Tilt-rotor technology holds the promise to revolutionize aviation—we should not be afraid to embrace this promise. Both the Department of Defense's Panel to Review the V–22 Program and the National Aeronautics and Space Administration's Tiltrotor Aeromechanics Phenomena Assessment Panel concluded that tilt-rotor technology is sound and that mishaps have been the result of engineering deficiencies that can be solved. The V–22 will radically increase the Marine Corps and Special Operations Command's operational reach and tactical flexibility. The Osprey's superior range, speed, and payload will give Marines and Special Operations Forces the ability to accomplish combat missions and other operations from distances previously unattainable, with response times far faster than possible with other airframes. The battlespace of the future will demand capabilities that provide rapid and effective maneuver. Through the use of the V–22's increased speed and range, we not only improve our ability to influence the tempo of operations, but we provide our forces with greater survivability. These capabilities are the foundation for how we have planned to transform our operational concepts and intend to reorganize our force structure.

We are aware of the challenges associated with the Osprey but are pleased that the Under Secretary of Defense for Acquisition, Technology, and Logistics has announced that a new comprehensive flight test program for the V–22 will start this Spring. This flight test effort will be "event-driven," as opposed to being "time-driven." Both the Secretary of the Navy and the Under Secretary of Defense for Acquisition, Technology, and Logistics will periodically review flight test results to assess progress.

Short Take-Off and Vertical Landing Aircraft

In late October 2001, the contract was awarded for the Joint Strike Fighter, signaling a new era in naval aviation. The advantages of a stealthy strike fighter capable of taking off from an expeditionary base on land or at sea, fly in supersonic cruise, accomplish its mission with advanced sensors and weapons, then return to its expeditionary site are dramatic. This aircraft will transform the very foundations of tactical air power. It will provide the reliability, survivability, and lethality that our forces will need in the years ahead. Moreover, the Short Take-Off and Vertical Landing Joint Strike Fighter variant provides operational access to more than three to five times the number of airfields available around the world that are currently capable of supporting our so-called "legacy" aircraft. The Short Take-Off and Verti-

cal Landing Joint Strike Fighter can also operate from both conventional carriers and amphibious assault ship decks, effectively doubling the number of shipborne platforms available for operations. As these highly capable aircraft move from sea-based platforms to expeditionary airfields, they can effectively decrease response time for missions by 75 percent and increase time-on-station by 50 percent. These capabilities represent a significant increase in strategic agility, operational reach, and tactical flexibility over conventional aircraft.

Fire Support Systems

Of critical interest to our Marine Air-Ground Task Forces is the status of our fire support systems on land, at sea, and in the air. We currently have an acute shortage of fire support. It is vital for us to move ahead with existing programs to provide our marines with this important warfighting enhancement. Indeed, the funding, testing, and development of our systems are vital. The Lightweight 155 Howitzer is needed to replace our aging "legacy" field artillery weapons. The High Mobility Artillery Rocket System, moreover, promises to be rapidly deployable and will be a key part of our expeditionary operations, firing both precision and area munitions under all weather conditions, as well as extending our ground-based fire support umbrella to 60 kilometers. In addition to these fire support systems, we need the Ground Weapon Locating Radar to protect our forces against our adversaries' counter-battery fires. We should also continue to invest in Naval Surface Fire Support. Remedying the fire support shortfall we have lived with for much of the last two decades is crucial.

Advanced Amphibious Assault Vehicles

The Advanced Amphibious Assault Vehicle program remains the Corps' highest ground acquisition priority and promises to allow high-speed surface maneuver from ship-to-shore as well as on land. This vehicle will be able to deploy to objectives from over the visual horizon, 25 miles and beyond, and will allow our ships to remain beyond the range of many threat weapons and surveillance systems. It will help off-set an enemy's anti-access strategies and bolster expeditionary operations from the sea. Furthermore, the Bushmaster II 30mm cannon will give the vehicle a lethal direct fire capability. The Advanced Amphibious Assault Vehicle will be a decisive expeditionary warfare tool for operations in littoral areas world-wide.

High Speed Vessel

High-speed, intra-theater sealift, catamaran vessels provide phenomenal increases in speed and tactical flexibility for our Navy-Marine Corps Team. Building on operational use of the Royal Australian Navy's *HMS Jervis Bay,* our *Joint Venture* High Speed Vessel promises to reap new developments that will lead to new capabilities. Additionally, leasing the 331-foot commercial catamaran *Austal West Pac Express,* III Marine Expeditionary Force has demonstrated the viability of such vessels, using it to transport marines and their equipment to training exercises through out Asia—lifting 950 marines and 550 tons of materiel per trip, the equivalent of 14 to 17 military cargo aircraft. The Navy-Marine Corps Team's current requirement is for a craft that can transport 400 tons of cargo, travel 1,200 miles without refueling, and achieve a speed greater than 40 knots. We are confident in the High Speed Vessels capacity to deliver these capabilities and transform our intra-theater mobility.

Tactical Unmanned Aerial Vehicles

Unmanned Aerial Vehicles have already seen extensive action in the war against terrorism and their use is expanding. This technology's potential, combined with its ability to conduct dangerous missions without the risk of personnel casualties, making this a truly transformational asset. The Navy and Marine Corps' Vertical Take-Off and Landing Unmanned Aerial Vehicle Engineering Development Model program is designed to test and evaluate various sensor packages and the Tactical Control System architecture for use in future Tactical Unmanned Aerial Vehicles. In the interim, Marine Corps Pioneer systems will be upgraded to perform Unmanned Aerial Vehicle functions (Reconnaissance, Surveillance, and Target Acquisition). Presently, Marine Corps Unmanned Aerial Vehicles are preparing to deploy to Central Command's area of responsibility.

Aerial Refueling

Replacement of our aging KC–130 Hercules fleet with KC–130J aircraft is necessary to ensure the viability and deployability of Marine Corps Tactical Aircraft Refueling and Assault Support well into the 21st century. The KC–130J's performance features include increased cruising airspeed, night vision compatible interior and exterior lighting, enhanced rapid ground refueling capability, digital avionics, and powerful propulsion systems. These strengths promise lower life-cycle expenses

and eliminate the need for costly KC–130F/R Service Life Extension Programs. In sum, the KC–130J gives us the aerial refueling capability required to meet our current and future tactical aerial refueling demands.

Maritime Prepositioning Shipping Support Facility

Supporting the Marine Corps' Maritime Prepositioning Shipping, the Blount Island facility in Jacksonville, Florida, is truly a national asset that must be secured for long-term use. Its peacetime mission to support the Maritime Prepositioning Force has been of exceptional value to the Corps, but its wartime capability of supporting massive logistics sustainment from the Continental United States gives it strategic significance. The purchase of Blount Island is planned for fiscal year 2004, when our current lease of the facility will expire.

Command and Control

Command and Control technologies being introduced into Marine operating forces are key to making Expeditionary Maneuver Warfare a reality. Marine forces once ashore will utilize the Lightweight Multi-band Satellite Terminal, Tactical Data Network, and High Frequency Automatic Link Establishment Radios to link widely dispersed forces into the Network Centric environment. These technologies will result in capabilities that will greatly increase the operational agility of your Marine Corps.

C. Transformation of Organizational Structure

The transformation of our weapons systems and equipment as well as our operational concepts and business practices is a difficult task. Transforming how we organize ourselves is even more difficult. Nonetheless, building on its institutional legacy of adapting to match the threats and missions of a given time, the Marine Corps is reorganizing its structure. Furthermore, at the core of transforming our organization, is the optimizing of our greatest asset, our marines.

One of our leading examples of transformational reorganization is the 4th Marine Expeditionary Brigade (Anti-Terrorism). The 4th MEB (AT) combined our Marine Security Guards stationed at America's embassies around the world, Fleet Anti-Terrorist Security Teams, and Chemical Biological Incident Response Force with an organic aviation component, combat service support element, and specialized anti-terrorism infantry battalion, as well as a command element with dedicated planners, coordinators, and liaison officers for anti-terrorism operations. The 4th MEB (AT) has had an immediate impact, deploying to our re-opened embassy in Kabul, as well as supporting anthrax decontamination at the Capitol and security at the Olympics and the State-of-the-Union address. In the near future, all deployable units will deploy with an anti-terrorism capability.

In addition to standing up the 4th MEB (AT), we are looking at other organizational transformation initiatives. We are looking at additional ways to optimize our forces by realigning outdated structures to reflect new realities. Now is the time to consider how to best organize our forces to meet the needs of this transformational era.

Similar self-examination has led to successful change in our supporting establishment. Three illustrations of this are Marine Corps Combat Development Command, the Marine Corps Intelligence Activity in Quantico, Virginia, and Materiel Command in Albany, Georgia. By reorganizing the Marine Corps Combat Development Command, we have redefined its role in supporting Marine Operating Forces and the Service Headquarters. It has emerged as the Corps' home for long-range thinking and has taken on the role of coordinating requirements with the Navy as well as facilitating the Marine Corps' relationship with Joint Forces Command. The Marine Corps Intelligence Activity, likewise, has been highly successful in validating our intelligence reach-back concept. Exploiting both new command relationships and connectivity, the Marine Corps Intelligence Activity is providing timely, accurate intelligence to our globally deployed tactical forces. Similarly, by establishing Materiel Command, we have created a unity of effort and streamlined processes for the Marine Corps' acquisition and logistics support functions and ground weapons/equipment life cycle management processes. Material Command transformation initiatives for materiel readiness improvements and increased visibility of total ownership costs will achieve significant future cost avoidance and savings. This allows the Installations and Logistics Department at Headquarters Marine Corps to more effectively concentrate on policy decisions and support to the operating forces and the regional combatant commanders. In each of these reorganizations, optimizing efforts of the men and women who serve our Corps has been our primary intent.

Our People

Our highest priority remains unchanged: Marines, their families, and our civilian workforce. The most advanced aircraft, ship, or weapons system is of no value without highly motivated and well-trained people. People and leadership remain the real foundations of the Corps' capabilities.

It is important to note that the Marine Corps operates as a Total Force, including elements of both Active and Reserve components. We continue to strengthen the exceptional bonds within our Total Force by further integrating the Marine Corps Reserve into ongoing operations and training. Both Marine Expeditionary Force Augmentation Command Elements, two infantry battalions, two heavy helicopter squadrons, two aerial refueler transport detachments, as well as other units have been mobilized to support Operation Enduring Freedom. Called to duty, over 3,000 Marine Reservists are providing seamless support from operational tempo relief at Guantanamo Bay to augmentation at Camp Pendleton and Camp Lejeune.

Because our people are our number one priority, safety in the Marine Corps is a critical concern. While it is essential to maintaining our readiness, it is also a vital element of the quality of life that we provide our marines and their families. I am pleased to report that 2001 was a banner year for safety in the Marine Corps. The Aviation community set a record, posting the lowest Class A mishap rate in the Corps' history. Through education, vigilance, and command involvement we reduced privately owned vehicle fatalities 39 percent last year. Overall, we had our second lowest mishap fatality rate in 14 years. These are all very positive signs in our quest to safeguard our most precious assets, our marines.

One factor contributing to our safety challenge is that we are a young force. The average age of our marines is 24, roughly 6 to 8 years younger than the average age of the members of the other services. This is part of the culture of the Corps as our unique force structure shows 68 percent of our marines being on their first enlistment at any one time. The nature of our force structure requires us to annually recruit 41,000 men and women into our enlisted ranks. To fill this tremendous demand, our recruiters work tirelessly and have consistently met our accession goals in quality and quantity for over 6½ years. The performance of our recruiters has been superb.

Retention is just as important as recruiting. We are proud that we are meeting our retention goals across nearly all military occupational specialties. Intangibles—such as the desire to serve the Nation, to belong to a cohesive organization, and to experience leadership responsibilities through service in the Corps—are a large part of the reason we can retain the remarkable men and women who choose to stay on active duty. Concrete evidence of this phenomenon is seen in our deployed units, which continually record the highest reenlistment rates in the Corps. The Selective Reenlistment Bonus Program has been an additional, powerful tool to meet our retention goals. Increases for the Selective Reenlistment Bonus Program, as well as the targeted pay raise initiative, will go a long way toward meeting our retention goals and helping take care of our marines and their families.

While we recruit marines, generally, we retain families. The effectiveness of our marines is dependent, in large measure, on the support they receive from their loved ones. Our families are therefore vital to our readiness. Increased pay, as well as improved housing and health care, directly influence our families' quality of life and, in turn, enhances the readiness of our units. Your support of our families' quality of life has greatly contributed to our retention success. We are extremely thankful for the enactment of much-needed improvements to the TRICARE system for our active duty personnel and for our retired veterans. Thank you, as well, for continuing to support increases in the Basic Allowance for Housing that help our marines meet the rising costs of rent and utilities within the limits of their housing allowances.

This committee has provided considerable support to our marines and their families and the Marine Corps has also improved services to our families in hopes of further enhancing their quality of life. We have established Marine Corps Community Services aboard our installations to better provide for both our marine families as well as our single marines, who constitute nearly 60 percent of our total active force. We have also sought to recognize and support our marines and families with special needs and I am proud to say that both the Marine Corps' Exceptional Family Member Program and the Military Committee for Persons with Disabilities were the recipients of the 2001 S. Robert Cohen Annual Achievement Award for their commitment to facilitating and coordinating support and services to families with special needs.

Similarly, seeking to be more responsive to our marines and to enhance their career opportunities, we have undertaken a number of manpower reforms to better manage the force. Through the personal involvement of commanders, career plan-

ners, and leaders throughout the chain of command, we have been able to meet our retention goals, stabilize our force, and reduce the burden on our recruiters. We are investing considerable resources to successfully recruit, develop, and retain the civilians who work alongside our marines. Our strategic plan in this regard is to develop civilian career programs that integrate and advance technical and leadership competencies.

We are also investing in our marines by improving how we train and educate them. We believe the old adage, "you fight the way you train." Because of this, our training exercises are becoming increasingly joint and combined to provide our marines with the experience that they will need when they are called upon to respond to crises that require them to work alongside our sister services and partners from other nations. Our ability to effectively operate in both joint and coalition environments was clearly evident in the experiences of the Marines of Task Force 58 in Afghanistan. However, we are increasingly finding that the training and mission effectiveness of our marines is degraded by the many forms of encroachment on our bases and stations. We need your continued support to ensure that the growing complexity and expense of encroachment issues do not curtail our efforts to conduct meaningful training. Encroachment issues will continue to be a 21st century problem.

Experience, in tandem with education, is the best foundation for dealing with both difficulty and fortuity. Accordingly, we are not solely focused on training our marines, but on educating them as well. We have expanded our non-resident education programs to ensure that greater numbers of marines have the opportunity to better themselves. We are also adjusting our policies to better accommodate family realities—such as spouses with careers or children with exceptional needs—when selecting officers to attend various schools that require a change in duty station. We have instituted a "National Fellows program" for competitively selected junior officers and staff non-commissioned officers to experience the corporate world, think tanks, non-governmental organizations, and the workings of Congress. The experiences they receive will broaden perspectives and provide valuable insights that will strengthen our capacity to innovate and adapt in the years to come.

The Marine Corps' commitment to training and education, as well as our commitment to our "warrior culture," is reinforced in our recently instituted martial arts program. We have developed a discipline unique to the Corps and we are in the process of training every marine in its martial skills. This program promotes both physical prowess and mental discipline. Successive levels of achievement are rewarded with different colored belts reflecting a combination of demonstrated character, judgment, and physical skill. This training will benefit marines in the complex missions we face; especially in peacekeeping and peacemaking operations where physical stamina and mental discipline are vital to success. At its heart, our martial arts training is fundamentally focused on mentoring our young men and women and helping them to understand that the keys to mission accomplishment are often a matter of combining intelligence, strength, and self-control to influence circumstances, rather than simply resorting to the application of deadly force. The warrior ethos we instill in our marines, transforms them into intelligent and disciplined warriors, and mirrors the Marine Corps' own transformation in equipment, doctrine, and structure.

IV. Conclusion

In summary, the Marine Corps' transformation is a synthesis of new operational concepts and better business practices, leap-ahead technologies, and realigned organizations. This transformation promises to exponentially increase the Corps' sea-based capabilities as America's medium-weight expeditionary force in the years ahead. Our capabilities, combined with those of our sister Services, form an integrated array that provides America with the diversity and versatility she needs to confront different threats and environments and accomplish disparate missions. In close partnership with the Navy, we are proud of what our Corps contributes as America's forward engagement and expeditionary combined-arms force. We are grateful to you for your leadership and for the unwavering support you provide to your Corps of Marines.

Senator SESSIONS. Well, we think you are, too. The recruiting and retention does remain exemplary. I think that speaks well for the morale and sense of fulfillment that the men and women have who serve in the Marine Corps. You are to be congratulated for that. I know you have undertaken a number of changes in martial

arts and other things that have worked well and I hear good things about.

General JONES. Thank you, sir.

Senator SESSIONS. I frequently sit on airplanes with marines and I learn a lot that way.

General JONES. I will have to check the passenger manifests.

Senator SESSIONS. It is very informative, and morale is good.

General JONES. Thank you, sir.

Senator SESSIONS. The quality is good.

Just for example, I was with a young man who went to a superb college, had worked several years in the Atlanta real estate market, was a very capable young man, and decided that he wanted to go in the service and joined the marines and he wanted to be a pilot. It was very impressive.

Also, I just would note that in the State of Alabama, we lost Marine Gunnery Sergeant Steven Bryson in the KC–130 crash, one of those crew members. His mother and the family were well-supported by the marines with a memorial service in California. There was a lot to be done to accommodate the needs of that family and you once again demonstrated the kind of tight fellowship that you have in taking care of that family. I want to say thank you for that.

General JONES. Thank you, sir.

Senator SESSIONS. General Jones, we have received testimony that the preponderance of weapons used in Enduring Freedom have been precision guided. We have also noticed that the Marine Corps has asked for additional Hellfire missiles which now is an unfunded requirement. Can you comment on the present utilization and utility of precision guided weapons in the war on terrorism and particularly where we are with regard to the Hellfire missile?

General JONES. Yes, sir. If you do not mind, I will keep my comments in the unclassified realm here. But in general, one of the transformational aspects of warfighting between the 20th and 21st century, frankly if you really want to be more precise, since Operation Desert Shield-Desert Storm, has been the enormous progress that the United States has made in being able to deliver precision guided munitions. When you think that you have B–52s now that are almost in a close air support role, you really do have some transformational aspects of warfighting that are ongoing. I think that that is to be celebrated. It is an asymmetric advantage that U.S. technology has permitted us to achieve. It enables us to commit smaller forces on the ground, for example, which will have the capability of achieving missions that would, in the 20th century, have been unthinkable.

So with that kind of transformation both in the technology field and the application of that transformational capability in precision guided weapons, you have a capability that will save lives, American lives on the field and lives of our allies, and bring about a swift resolution to our stated objectives on the ground in any future conflict much earlier than before and at far less of a human cost. So I think that is certainly to be celebrated.

With regard to the Marine Corps, we have obviously been involved in the air campaign and had the marines on the ground and we have expended our share of ordnance. In general terms, I would say that we have done those things that are required to recapital-

ize those accounts where we have had a serious expenditure of munitions. I think that those programs for recapitalization are well under way.

Senator SESSIONS. But it does appear that the budget that has been submitted to us leaves some of your requirements unfunded for one of your more valuable precision weapons, like the Hellfire. Where are we on that and how significant is this unfunded mandate? Frankly, I am concerned because if we are in a much more prolonged engagement than we have been in Afghanistan and we have these very expensive platforms, very expensively trained and skilled pilots and crew, but we do not want them not to have the weaponry, the bullets to fire in the gun.

General JONES. Exactly. We were asked to submit a list of unfunded priorities. Perhaps "priorities" is the wrong term. These are programs that had we had the resources available we would have submitted, but the line was drawn at a certain place. So they are unfunded programs. In the case of the Hellfire, it was $105 million and that would buy about 1500 missiles. That stands as something we would like to have, but it did not make the cut in the request, so we will keep working on it.

Senator SESSIONS. In your preparation of the budget request, I suppose you could have made a decision in favor of the weaponry. How do you make those decisions? I would just express to you my concern that throughout the precision weapons area that we may not be maintaining the numbers that we need in all branches of service. I know it would require some tough decisions but, frankly, maybe having enough rounds to fire is more important than how many guns you have.

General JONES. Absolutely. We are always interested in replenishing our accounts, and as a member of the Joint Chiefs, we have talked about these expenditure rates across the inventory and I believe that we have addressed those with the industry and Congress. From a Marine Corps perspective, it has to do with how much is in your inventory and what is your sense, what is our sense really, of our future expenditure rates and do we have enough. So based on that, we submitted at the right level and the priority; if it were much more critical, my voice would have been much more animated.

So is it something that we would like to do? Certainly. But did it reach the level of critical must-do? Based on our inventory and our estimate of our usage rate, we think we are probably okay.

Senator SESSIONS. I think we got thinner than we should have been in the Afghanistan effort and, okay, we are restocking rapidly in a lot of our precision weapons. But I think it has been a lesson for us. Rather have too many than too little.

General JONES. I think you make a good point. What happened I think in Afghanistan was that—for example, in Operation Desert Shield-Desert Storm, 10 percent of the weapons that we used were precision guided munitions. In Afghanistan, it was 90 percent. We really crossed over the threshold of seeing what precision guided munitions can do.

But our theology, if I can use that word, was to essentially use precision munitions in the first few days and use all of the stealthy equipment that we needed and take down all the air defenses and

then get it into an environment where you could use less precision munitions. But because of the enormous success that we had, we kept on using the precision guided munitions. So as a result, across the board, we saw the attrition and we jumped in and we dealt with it as best we could.

But it is an astounding reversal between two conflicts spaced by about 11 years.

Senator SESSIONS. Well, it is. Would you say just in terms of economics, are you getting more impact on the enemy dollar per dollar with a precision weapon than with a dumb bomb? Even though they cost more each, you can put them——

General JONES. In the aggregate, you are going to probably achieve your stated goals in a shorter period of time and you are going to make less mistakes. You are going to have less unintended consequences. For example, if you go back to the Vietnam conflict, I remember being a second lieutenant and watching B–52s deliver Arclights and the rule of thumb for an Arclight was that you did not want to be within 5,000 meters of wherever the Arclight was going and you could feel the ground shake as they delivered the bombs. Now that same B–52 is delivering ordnance where you can be within 1,000 meters and still think that you will be okay. It is an amazing transformation in terms of capability.

I do think that our delivery systems are getting more and more accurate. Just since Kosovo, for example, we have had, what I think, one of the things that really dramatically highlighted the return of the infantryman, if you will, and the value of boots on the ground, apart from showing national commitment; but that soldier or sailor or airman or marine on the ground can really multiply the force capability because by giving strong eyes on target and guiding the precision weapons to their intended objective with a degree of clarity that is lacking if you are just doing it from the skies. That has clearly been a big change as opposed to Kosovo, where we had nobody on the ground and you were relying on everything that you could get from imagery and intelligence and so on and so forth.

So I think we have celebrated the return, I think, of the infantryman and the value of having eyes on target, boots on the ground, and getting real human and real-time tactical intelligence that translates immediately to being able to deliver precise ordnance at the right place and at the right time.

But it is more expensive. I think in the future we will get the price down, and I think that is the wave of the future.

Senator SESSIONS. I think the price does not necessarily have to be too much more than conventional weapons.

Let me ask you this. I know you have made a lot of changes. I know you have adjusted substantially to this change in technology that alters the face of the battlefield. But are you satisfied that you are at the level you need to be in terms of coordinating with Air Force or other services in coordinating marines on the ground with air? Is there more yet to be done?

General JONES. I think one of the great things that I was happy to see was how well this idea of close air support has permeated throughout the United States military. It was developed long before Special Operations Command even became an entity, but it is clear that Special Operations Command has done some remarkable, re-

markable things with being able to deliver close air and just basic bombing missions, so to speak.

One of the things that I alluded to in my opening statement was that we should really celebrate how far the idea of joint interoperability at the fighting force level has come. This was really something that was very impressive and I think is one of the clear lessons learned or lessons observed, I should say, from how the U.S. forces performed.

Whether it was a naval platform flying TACAIR missions or whether it was the Air Force bombing or whether it was Special Operations or marines or the Army on the ground, wherever we put troops together they seemed to be able to pick up immediately and interoperate and do very, very well.

Senator SESSIONS. Well, I thought that, too. I guess I would just like to pursue it a little further. My thought is the further you get away from your Special Ops, your most highly trained units, in all the services—do you think we are where we need to be? Do we still need some more commitment to reaching the highest possible level of coordination, particularly using precision weapons?

General JONES. The best way to fight and win on the battlefield is to practice the way you fight. In that regard, I am a supporter of the efforts that Joint Forces Command is doing towards bringing the forces together and achieving true interoperability.

But Senator, I would say that one of the most valuable things that the services bring to the joint war-fight is our service cultures. We have to be careful that we do not try to make everybody become too much the same. In peacetime, we bring different things to the table, different viewpoints, and it is the melding of all those capabilities that transforms the force and makes it even more exponentially viable on the battlefield.

So I think we should be very pleased with the progress of how the services get each of their forces to the joint, what I call the joint line of departure, because once they cross that line of departure and are actually into a real world situation; this is not time for practice, this is time for putting into practice what you have been doing in peacetime. I think we have done extraordinarily well.

Now, there is certainly more improvement we can make. For example, how we do logistics has got to be transformed in a way. We can do things better than stockpiling big ammunition dumps and supply dumps like we used to do in the 20th century. All the services are working, but not in isolation. We are sharing good ideas. What works in one service is being shared with another.

That is why we are seeing a situation where you can put small amounts of people on the ground and have them survive, because of that tremendous reach-back capability, whether it is to reach up to an overhead platform, reach back for intelligence, reach back for logistics. The command element of the brigade headquarters that led two marine expeditionary units into Afghanistan was 56 people. That would have been 356 people 15 years ago, but because of the reach-back capability and the technology and the changes that we have made to how you command and control forces on the ground, we are now putting fewer people at risk with greater protection and able to do it over tremendously long distances. I think that is to be celebrated.

Senator SESSIONS. I think it is, too. We should celebrate the transforming commitment of our military. Militaries have been considered to be very conservative and slow to change in the history of the world and that is pretty much true. But I am not sure any military in peacetime or quasi-peacetime has been as rigorous in change and innovation as ours. I am sure there has been none. Certainly it appears that no other military in the world is modernizing itself, taking advantage of new capabilities as rapidly as we are. That is why we were able to wreak a lot of damage on our enemies with a relatively small amount of loss to ourselves. So I salute you for that.

I am delighted that Senator Collins has joined us. She has shown great interest and fidelity to this subcommittee, has mastered the intricacies of it, and we would be glad to have you ask any questions or have any opening statement that you might have. Senator Kennedy will join us as soon as he is free.

STATEMENT OF SENATOR SUSAN COLLINS

Senator COLLINS. Thank you very much, Senator Sessions. I very much appreciate your being here today and carrying the burden for all of us who are committed to this subcommittee. There are a lot of different hearings going on today that we are trying to cover and I have just come from one that Senator Kennedy is chairing.

General Jones, your testimony highlights the acute shortfall of fire support and the need to continue to invest in naval surface fire support. I believe that the Advanced Gun System and the Extended Range Guided Munition technologies which are scheduled to be incorporated into the DDX will make significant advancements toward addressing this shortfall. Would you please comment on these two specific technologies and the capabilities that they will provide to the Marine Corps?

General JONES. Senator, thank you very much for raising what has been a consistent worry of mine since I have taken office. Both on land and at sea, we have a shortfall in terms of fire support capability. The Marine Corps, in partnership with the Navy, has long depended upon naval fire support for successful amphibious operations of the 20th century. In fact, our history is scattered with loads of battles that have been won with the combination of the Navy and Marine Corps team, with strong fires coming from the sea and marines projecting ashore to secure an objective.

What has happened since World War II is essentially a capabilities transformation. I talk about the Marine Corps now not in terms of necessarily an amphibious force, but as a sea-based force that is expeditionary in nature. That expeditionary quality and the ensuring technologies that have developed have allowed us now to project that force over much longer distances.

It is important that the fire support systems, both on land and at sea, accompany that capability. We currently have a shortfall in both sea-based and land-based capability. So in partnership with the CNO, who also recognizes this shortfall, we are anxious to be proceeding with the development of precision weaponry over extremely long distances that can, in fact, correct that shortfall.

I might add parenthetically that, on land, the Lightweight 155 is at a pivotal moment in its program life. This year, we should,

in my opinion, commit to fully supporting the acquisition of that particular program.

The naval programs are a little bit more complex and a little bit more transformational, because of the precision that goes into it. But we fully support the program. We fully support the advanced systems that we hope will be resident in our future surface platforms. We are working assiduously with the Navy to bring this about.

Senator COLLINS. Would you please comment on the challenges that the Navy and the Marine Corps face in operating in the challenging littoral environment and how the DDX and its family of ships would help you better address those challenges?

General JONES. Yes, ma'am. The value of the naval expeditionary force is that you are not as encumbered with access as you are if you are moving the landward piece of our national capability. In fact, in an operation like Enduring Freedom, the overwhelming majority of the TACAIR was delivered from naval platforms. Two marine expeditionary units were delivered over 400 miles in a landlocked country and maintained. Not only were they maintained, but when they arrived, they operated, ready to fight.

In the future, the CNO and I are very, very interested in developing advanced sea-basing concepts with the DDG, with the future family of amphibious ships, and with our experiments with high-speed vessels. We believe that, particularly in the global war on terrorism, most of the potential areas that we would operate in are in and around the littorals. That capability of that naval expeditionary force, which will look differently in the future, will be accompanied by DDGs, and will have amphibious ships and a carrier that is committed to the support of the operation, which will result in greater integration of Naval and Marine Corps aviation. This is a capability that is a national treasure and should be carefully invested in over the years to come.

Senator COLLINS. I was surprised that your written statement did not address the DDX and its family of ships. So just for the record, are the Marine Corps and are you still in strong support of proceeding with the DDX shipbuilding program?

General JONES. I am in complete support with the CNO's program. The Marine Corps and the Navy budgets are combined to form the Department of Defense's budget. Generally in my statement, you would not necessarily see a shipbuilding characterization because that is usually done elsewhere. But I can assure you that I am a vocal supporter of the Navy programs. I believe that I am on record as saying that we need to recapitalize our shipbuilding accounts to start turning our Navy around so that we can build more ships in the future.

The Secretary of Defense has said publicly that he regrets that we were not able to do as much as we wanted to this year, but it is certainly something that is on his calendar. He is very aware of it and within the limitations of our budgetary process we did what we could to invest what we needed to this year. But it is not a subject that is lost on us in terms of its importance.

Senator COLLINS. General, section 211 of the Fiscal Year 2002 National Defense Authorization Act conference report requires the Secretary of Defense to carry out an assessment of the require-

ments for naval surface fire support of ground troops operating in the littoral environment. That report is due at the end of this month. Could you tell us what the status of the report is and could you provide us with any insights on its conclusions?

General JONES. If I could provide that for the record, I would appreciate that. I am not exactly sure as to what the exact status is at this point. I will be happy to do that.

[The information referred to follows:]

The report is being reviewed within Plans, Policies, and Operations (PP&O) of Headquarters, U.S. Marine Corps and will be returned to my office around the beginning of June. The report concludes that the combination of near- and far-term programs described therein will collectively provide the required range, lethality, accuracy and responsiveness to meet Marine Corps requirements for Naval Surface Fires.

I concur with the report's conclusion that these programs can meet the requirements of the Marine Corps, but only if procured in sufficient quantities to provide sustained fire support to forces operating in the littorals. Obviously, fielding a capability (achieving an Initial Operational Capability) does not mean that a requirement has been met; that capability must be sufficiently proliferated to meet the needs of the supported force. The report does not address the quantities of munitions or weapon systems that will be procured through this plan, and I am concerned that these quantities will fall short of meeting the requirement to provide sustained, all-weather fire support from the sea.

Senator COLLINS. Thank you, Senator Sessions. Thank you, Mr. Chairman.

STATEMENT OF SENATOR EDWARD M. KENNEDY

Senator KENNEDY [presiding]. Thank you very much, Senator Collins. I just turned around and I saw you at the same hearing we were at, and here you got ahead of me once again.

I want to thank my friend Senator Sessions for opening this hearing. Senator Collins and I were both at a very important hearing with a witness, Christopher Reeve, who is challenged physically from being paralyzed from the neck down. So that hearing, although it was supposed to be in the morning, necessitated a change to the afternoon. He has a particularly pressing schedule. So I apologize to Senator Sessions. I thank him very much for opening the hearing.

I want to thank you, General Jones, for being here. I think anyone that is meeting with the leaders, let alone the members, of the armed services today, in any day in recent times, has to extend their extraordinary condolence through you to the others, not just in the Marine Corps, but in the Special Ops. Certainly the marines have been out there at the cutting edge in Afghanistan, and all of us are very mindful of the loss of those lives, particularly in the last 36 hours. So I am sure you have a keen appreciation for the very strong admiration and respect that all of us have for the marines and for others who are facing a very challenging and difficult task and performing extraordinarily well and suffering the casualties. Since you are the representative here today, we hope that you will understand that that is the way that we feel and that we are grateful, obviously, to you for all of your service.

General JONES. Thank you, Mr. Chairman.

Senator KENNEDY. In the hearing today, the subcommittee has worked diligently with the Marine Corps and the Department of the Navy to address some important problems involving: the fire

support capability, including the organic Marine Corps fire support and Navy shore support; enhancing the tactical mobility of the Marine Corps; and augmenting the mine countermeasures. I will note for the record that this subcommittee has taken the lead in Congress in ensuring the Navy and Marines improve the existing capability in these areas, in many cases over the objections of senior Defense and Navy Department officials.

Unfortunately, we have seen early signs that the Navy Department may be lapsing into previous unacceptable behavior. Some of the instances that may be forming a pattern are the cancelling of the Land Attack Destroyer, the DD 21, program that was intended to be a multi-mission ship, but was primarily aimed at meeting the Navy surface fire support requirements of the Marine Corps. DD 21 was to have been the first ship in a class of 32 ships with delivery starting 2010. Marine Corps officials have previously testified that nothing short of the capability of the planned DD 21 with two 155-millimeter guns would meet their fire support requirements.

With the new DDX program, there is no firm commitment in near the Future Years Defense Program (FYDP) to build anything other than a demonstration ship using R&D funding. It is not clear when, if ever, the FYDP would lead to meeting Marine Corps fire support needs. That is number one.

Second, the terminating of the fire support missile program, Land Attack Standard Missile (LASM). The LASM was a program designed to use old surface-to-air missiles to provide some fire support capability, particularly at longer ranges. It was intended to be an interim system that would have been replaced by the new system, the ALAM.

Last year, it appeared the Navy was canceling the ALAM. However, we could not tell for sure since the budget request did not give any information about fiscal years after 2002. This year, it is clear that the Navy is canceling both programs.

Third, cancellation of the shallow water minefield breaching system. The Navy decided last year to terminate the Shallow Water Assault Breaching System (SABRE) and Distributed Explosive Technology (DET) shallow water mine clearance systems. In part, they based their decision on the fact that the systems are too bulky to be carried continuously aboard ship, and that the lanes cleared through the minefields would not be wide enough.

The Navy made this cancellation decision in spite of the fact the Navy has no near-term alternative to provide the capability. It is hard to understand why having no capability in this area would be better than at least having some capability, whatever the shortcomings.

Then they have the retiring of the U.S.S. *Inchon* mine command and control ship. Several years ago, with significant pressure from this subcommittee, the Navy decided they needed to have a large aviation-capable ship that would be dedicated to mine countermeasures support. They converted an older amphibious ship, the U.S.S. *Inchon,* to the duty. While the ship served the purpose for which it was intended, the fact it was an older ship and was probably not the highest on the Navy's maintenance priority list caused an erosion in material condition.

Within the last year, the crew experienced a fire in the ship with one person killed. Because the Navy has decided that fixing the ship would be too expensive, they are retiring the ship with no immediate replacement. Navy officials have said that, in the interim, they would use one of the amphibious ships in the regular fleet in case they need to conduct dedicated minesweeping operations. This was the position we were in before this subcommittee began pressing the Navy to make significant mine warfare improvements in the early 1990s.

Unfortunately, there are other examples that I can cite, but in the interest of time, I will not. Each of these actions taken individually may have an explanation. However, taken as a whole, I fear they are part of a pattern of the Navy Department's walking away from their funding of the very capabilities that make the Navy and Marine Corps team so relevant to today's world.

If there is a new military strategy that is charting a new course for the Navy-Marine team, we need to hear about and understand it. If there is not, then we need to ensure that the Department of the Navy does not march down a path of incrementally divesting its capability without a thorough understanding of where these actions will take us.

So I would hope that perhaps, General Jones, you would give us your reaction to this set of circumstances.

General JONES. Thank you, Mr. Chairman. In 1995 I was privileged to serve for a year as the director of expeditionary naval warfare on the staff of the CNO and one of my responsibilities during that time was appearing before this subcommittee to testify on mine countermeasures and the direction of the mine warfare program.

The commitment that was made at that time was to try to leave our legacy systems, which were developed, in theory, many, many years ago during the Cold War, when the United States structured itself to have a home port breakout capability. The fear was that enemy mines could be placed around our ports so that we could not actually put our ships at sea. We had structured ourselves to do that.

While I was the director of expeditionary warfare, we, I think, made some progress towards transitioning from this legacy system to an organic capability. The thinking started to emerge that the naval expeditionary force of the future must have an embarked organic capability in order to deal with the mine threat, not at our home ports, but in the littorals or in the areas of operation that we were interested in around the world.

We have invested a significant amount of money in bringing some capabilities to the fleet, albeit not completely done. But the idea was to try to get away from the fleet being dependent on the arrival of the *Inchon,* which would be home ported back in the continental United States, and, without knowing exactly where the problem would be they have to, basically, go to full stop waiting for the mine warfare community to arrive on-station because there was no organic capability.

So we have taken the leadership of this subcommittee seriously, because I remember how serious it was during that period. We recognize that during that time we had not sufficiently paid attention

to the intent of Congress in this matter, and we fashioned some budget requests that were inviolate for the following 3 or 4 years in terms of mine warfare. In other words, mine warfare was fenced in the United States Navy for several years.

As a result, they were able to make some exciting changes in trying to get to that organic capability. The shallow water mine countermeasures program, affectionately known as SABRE and DET, was not something that we walked away from without considerable experimentation and observation. It is a capability that gives you some utility, but it is very slow, it is extremely heavy, and it is not what I would consider an expeditionary program that we want to peg our future on.

We have a target date, an IOC of 2005, to arrive at organic mine countermeasure capability within the carrier battle groups, and I believe that it is going to be exciting to get there. Now, in the mean time, are we going to have to accept some risk? Yes. But are we going to save some money by rolling up some legacy programs in order to get to where we want to go? Clearly.

I would also say that one of the things that we should remember about mine warfare, particularly with the amazing technologies we have this year, is that, by virtue of our air cushion landing craft, some of our high-speed landing craft, and the range that technologies such as tilt rotor technology will bring to the expeditionary forces, we are not channelized nearly as much as we were in the 20th century to coming across a certain beach at a certain time simply because that is the only place we can land.

We have access now to 85 percent of the world's landing beaches. We do not go up in the face of the enemy. Expeditionary maneuver warfare takes us to do just the opposite. So in many cases, finding out where the mines are is the first half of the puzzle, because we can go so many places where the mines are not.

Now, clearly in-stride breaching is something that we want to bring into the United States Navy. No battle group should be held up because there is a floating mine that is detected in the water. We should be able to neutralize that mine.

In that context, I would also offer that the progress in naval mine warfare outstrips the progress that we have made in land mine warfare considerably at this point. So not perfect, but certainly getting there.

Senator KENNEDY. Well, let me just remind—you do not need any reminder. I remember during the Iraq War being over in the Gulf and seeing those helicopters dragging the big chains in front of American resupply ships that were going three knots. We had American ships that were hitting those mines. Some of those mines were World War I mines. World War I mines! Now, we have been after this subcommittee, Senator Cohen and I, to talk about how we were going to get some help.

Last year, I asked Admiral Fallon, what we were doing about it. Remember the difficulties. I mentioned the problems of mine warfare. We apparently believe that mines continue to present a threat to the Navy and the Marine force. So Admiral Fallon went on to say, "We have a program in place that we are working in the area of new technology and, frankly, we are waiting to see how these things deliver."

I went on: "I was interested in why the Navy was altering or redirecting funding on the SABRE shallow mine breaching system when it has no near-term alternative to field. I understand that it was done because they have testing problems. Do you want to explain?"

He gave a long explanation: "The recommendation is to pursue other technologies to try and do the job."

I want to know the assessment when he said we have new technology and we are waiting to see how things deliver. Well, we are a year later. I want to know how they are delivering. We are a continuing body and I am not satisfied with answers that come up every year: "well, we are looking at this and we are looking at new technologies." Here we have the Admiral saying we have new technologies and we are going to assess them. Now, I guess we will ask the Admiral when he comes in here specifically. This is what they said a year ago and we want to know what they have been doing on it.

I mean, that is the only way we are going to get any accountability. It is not as though we are all starting over every single year. That is what it always seems to be every single year. We are starting over and that is not acceptable. I would think you are the ones that would be the people that would be the most concerned about this priority in terms of what it is going to mean for your people. It was a matter of enormous concern to marines when I was out there. LaBootie, who you know well, has talked about this, about the limitations in terms of how the Americans were going to be able to deal with the limitations and how the marines were going to be able to land and perform in shallow waters on this.

This is something that goes on every single year. I think that this is something that we have got to try and find out. Maybe we will go talk to the Navy about it, but it is something that is a matter of concern.

Let me just go back to what I was talking about in terms of the firepower. We had heard testimony over the past the only solution to meeting the Marine Corps' surface fire would be the introduction of the capability that was going to be available in the DD 21, the two, as I mentioned, gun batteries. Now, Navy has outlined the DDX program and that will be 2005.

So, has the Marine Corps changed its longstanding requirement for naval surface fire support?

General JONES. Sir, we have not, and that is an identifiable shortfall that I identified in 1999 in my confirmation hearing. Not only is there a shortfall at sea, there is a shortfall on land. On land, which are the programs that I have the most facility to affect, we will bring, hopefully, on line within a very short period of time the Lightweight 155 and, finally, a replacement mortar, the 120-millimeter mortar, that will significantly help remedy the paucity of fire support that is critical to the operation of our land forces.

At sea, we are further away from a capability that will reach out over the distances that we can now project forces. But nonetheless, it is a commitment that we must bring to bear and bring into the inventory as quickly as possible.

Senator KENNEDY. Well, this is an important issue and you have been eloquent on it. You wonder whether there is any prospect the

Navy will be able to meet your fire support requirements during the current and future years in the defense program. I mean, that is a serious question. Given the actions that the Navy has taken, it is still very much up in the air.

Now, let me indicate where this leads. If we are not really serious about the creditable forcible entry capability, we have a limited ability in fire support now, and the actions taken in the last year give little hope the Navy will be able to meet the Marine Corps fire support requirements in the foreseeable future. So, if we are not really serious about maintaining or improving the capability, it raises more questions about whether we need the traditional amphibious shipping or other Marine Corps systems.

I mean, why should the subcommittee conclude the Department is really serious about maintaining and improving the forcible entry capability in view of the various programmatic decisions that appear to be eroding that capability over time?

General JONES. Mr. Chairman, I want to emphasize that the naval gunfire support has been historically important to us and it will be important to us in the future. But I would be remiss if I left the subcommittee with the impression that that is the only thing that gives us a forcible entry capability. The current range of the 5-inch 54 is about 14 nautical miles. The Advanced Gun System has a threshold of 60-plus nautical miles and the Objective Gun is over 100 nautical miles, and that is transformational capability.

Some years ago, the Marine Corps, recognizing that battleships were disappearing and naval gunfire systems were attriting and not being replaced, committed to remedying that shortfall through heavy investment in its air-delivered ordnance systems. We have invested heavily in close air support and the Marine Corps has pioneered it as far as I am concerned.

So the utility of forcible entry with the combined arms force of the Marine Corps, I maintain, still is very important to the operational flexibility of the national command authority. Naval platforms give you an access capability that, as we saw in Operation Enduring Freedom, countries that do not wish for you to use their bases or put a price tag that is so high that you cannot ever operate from there because you do not want to invent a Marshall Plan all over the world. It gives you the access capability and the forcible entry capability that we need.

Clearly, naval surface fires need to be addressed. I believe that is recognized. Is it going fast enough? Probably not as fast as we would have liked, but it is a recognized requirement and shortfall. The good news is on the ground side; we are remedying it. We need to do more on naval guns and we will work with the Navy to do that. I think it is recognized.

Senator KENNEDY. Let me move along. We want to give focus in both of these areas and follow closely and we will continue to do so. We want to work with you on this in terms of the priorities of the committee because of the reasons you have expressed very eloquently.

Let me go to the V–22 program. The subcommittee was notified recently that the Navy is paying the contract team to store 19 of the V–22 aircraft already built while the fixes are identified and

tested. So, as I understand it, we have, I guess, it will be 30. Is that right, 30?

General JONES. Yes, sir, about 30, 32.

Senator KENNEDY. I think at the outset, we want to get it right. Here is someone who wants to get it right. We do not want the marines, not that you would, cutting corners to try and—I recognize you have the backlog and the pressures on this. I think we want you and the marines and the Defense Department to get this thing right and take the time to get it right. That is the basic point that I want to make.

Now, having said that, what can you tell us about this fact? We are getting all of these now—we have 30. All are going to have to be adjusted and changed now to deal with whatever kinds of changes that are going to be necessary. We want to try and keep the line on track, obviously, in terms of production. We have these realities that are coming up and we want to hear from you about how you see this current situation and what you can tell the committee.

General JONES. Thank you, Mr. Chairman. The V–22 has survived because of the support of this Congress over the years. It has been—I believe, I continue to believe it to be truly a transformational capability. It was thoroughly looked at by the defense panel and NASA, two independent bodies that rendered the judgment that the problems with the program were not due to technology being immature, but due to engineering changes that had to be effected in the aircraft.

For most of the past year, we have been working on making those corrections, the engineering corrections. We have been consulting on a daily basis with the experts in industry, with the best minds that we can put against this problem. We have essentially done a major rework of the hydraulic system to eliminate the chafing problems that have been discovered in the previous V–22's that were built, and we have rectified the software problems that caused the flight control anomalies in the last crash.

We are now to the point where probably some time in April we can resume testing. This is an event-driven scenario, not time line-driven. I have stated for the record, along with the Commander-in-Chief of Special Operations Command, that had we been able to use this technology in Afghanistan, we probably would have not had a considerable number of helicopter accidents that we have had, simply because of the range, the capability, the altitudes, the speed that this technology offers.

Let me be very clear that I think that this is so transformational in terms of military capabilities that it is really the departure point for helicopters, who are struggling in Afghanistan at the heights that we are asking them to perform and causing us to be very creative in how we get our helicopters to the area of operations from the standpoint of fuel, maintenance, etcetera.

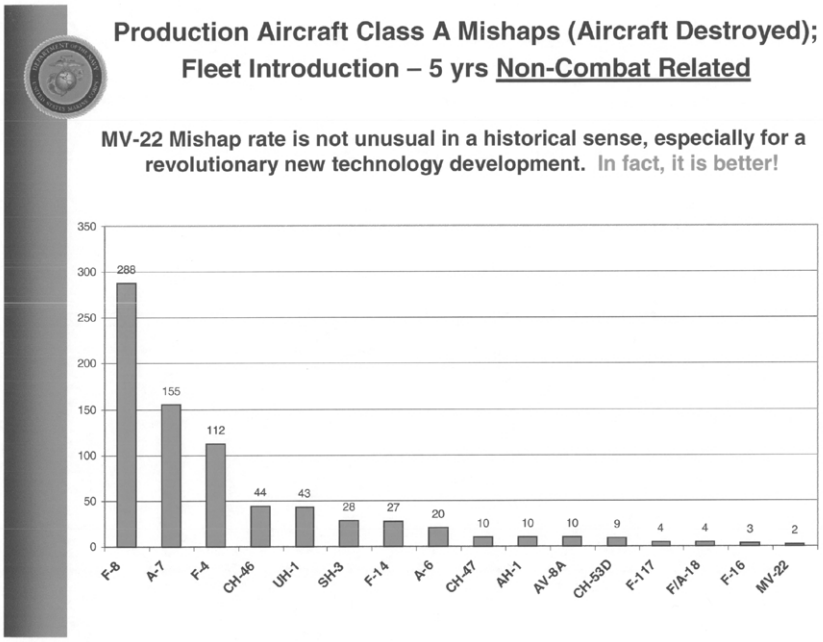
So where we are is we are about to return to a testing mode. We will do that carefully. I would like—with your permission, I have just two charts that I would just like to show you.

Senator KENNEDY. Sure.

General JONES. If I could have the first one, please.

Just from a sense of perspective—and this is only for naval aviation—this chart shows is naval aviation mishap rates, which is calculated based on 100,000 flying hours. You can see—and hopefully you have a copy before you—that in 1954, as a result of a very high mishap rate, in naval aviation 776 aircraft were destroyed as a result of mishaps in 1954. In 2001 the number was 15.

So, this basically shows what tremendous progress we have made over the years in terms of flying more safely, recognizing that, sadly, it is never zero, but it certainly has gotten better.



The second chart, though, shows you by type the accident rates for production aircraft within the first 5 years non-combat-related, starting with the F–8 on the left and all the way over to the V–22. I want to say these are production aircraft class A mishaps, not testing and evaluation. You see that historically speaking the V–22 is generally in the same envelope of performance, if not slightly better than, most of the other aircraft.

This is just to simply say that aviation is still dangerous and, despite the progress of science, we still will make mistakes. But I think that we are going to be within a very acceptable envelope, recognizing that zero is our target.

So we are anxious to try to bring this capability aboard. We have a plan with industry to retrofit the production aircraft that have already come off the line with the changes. I have personally visited Amarillo. Just recently, I have talked to the leaders of Bell and Boeing. I have talked to the program manager. The Secretary of the Navy is very involved. Mr. Aldridge, the Under Secretary of Defense for Acquisition, Technology, and Logistics, has given us his support to resume test flights and we are excited about the prospect of bringing this capability into our National inventory.

Senator KENNEDY. So, obviously, it is going to have to be tested and then, if it sort of works, they make the assessment about how the changes will be made in terms of the current production lines and how you retrofit the past.

General JONES. The test aircraft will have all the changes in it.

Senator KENNEDY. We hope that you have a continuing invitation to keep our subcommittee advised as to where it is moving.

General JONES. Thank you, sir. I will do so.

Senator KENNEDY. On the LHD stability issue that you are familiar with, the subcommittee has been informed there will be a ship stability issue on the LHD–1-class ships if the marines choose to replace the current air group with one-for-one replacements, the MV–22s, and Joint Strike Fighters, replacing the helicopters and AV–8B. Is this one of the reasons for the continuing discussion about the details for the LHA replacement?

General JONES. Yes, sir. The LHAs are reaching the end of their service life and need to be replaced. So, as we do, that problem will certainly take care of itself over time.

Senator KENNEDY. Well, as I understand, it they will be replaced over the next decade or two.

General JONES. Yes, sir.

Senator KENNEDY. The LHD–8 would presumably replace one of them. I understand the Department of the Navy has not come to a decision on the requirements for the rest of the replacement programs. The reports indicate that the size of the replacement ships range from 40,000 tons to as large as 75,000 tons. Why is there such a difference in the displacement among the options?

General JONES. Well, the LHD is a significantly more capable ship from the standpoint of being able to accept new aircraft. Of course, the Joint Strike Fighter STOVL version and the V–22 figure in our transformational objectives. The Department remains committed to a 12 amphibious ready group capability as a floor and we, the Secretary, the CNO, and I, are very supportive of the follow-on programs to replace the LHD.

Now, there is some discussion currently ongoing about the right size for the LHD of the future in order to make sure that we can accommodate all of the things that we want that ship to do. But fundamentally, it will still be an LHD.

Senator KENNEDY. Well, given the uncertainty, does it make a lot of sense to have advance procurement funding for the LHD–9 when we have not decided that configuration?

General JONES. I think I should defer to the shipbuilding community with regard to whether that is a wise course of action. I think that the fundamental design of the ship will not change. What is at issue here is whether there will be a plug in it to make it a little longer or a little bit wider.

Senator KENNEDY. You mean the difference between 40,000 and 75,000 tons——

General JONES. I am not sure what the spectrum of difference is, but I would be surprised——

Senator KENNEDY. Well, the only point is if we are going for—I would think we would want to get the final decision on the size of it before we do much advanced procurement funding.

General JONES. I have General Magnus here, sir, who is more deeply involved in the specifics.

General MAGNUS. Mr. Chairman, it is a pleasure to answer the question for you. First off, the amount of money that you were referring to, Senator, was a small amount of RDT&E funding. This summer, approximately the June-July time frame, we are going to report out on the analysis of alternatives which covers the range of ship hull forms that you talked about, ranging from about a 45,000 ton ship to about a 73,000 ton ships.

Clearly, we have to do the cost effectiveness trades to determine at that range of effectiveness and wide range of capabilities. Until the analysis of alternatives report is out, we believe that, basically, we have a place-holder with a small amount of RDT&E. If, in fact, it is simply an LHD–8 type hull with a 100-odd foot plug in it, there would be less amount of development required. If it is a new hull form, such as a twin hull 70,000 ton displacement ship, a significant amount more development would take place.

These ships are not only required to replace the LHA–1 class, which the first ship would normally retire about 2011, but, in fact, the CNO was on board *Bella Wood* just a few weeks ago, a 24-year-old ship, and he was quite surprised in a negative sense about the material condition of the ship. So, we would prefer not to have to wait until these ships have to be retired. We want to get under way with a decision on the development, sir.

Senator KENNEDY. That is good. I think you have it about getting the decision on the development so that it will move along. I just have some concerns about putting out a good deal of additional funds now without the final judgment and decision.

I just had a couple. My colleague has been extremely kind and patient here. I have just really two more areas that I would like to mention. One is the new prepositioning ship program and the modernization of the prepositioning force ships. We all know about the importance of those prepositioned ships. I understand there has been continuing discussions in the Navy and DOD about the set of requirements on that. If there is anything that you want to——

General JONES. Sir, thank you very much.

Senator KENNEDY. I just heard the concept is something else. About how long is that ship going to be anchored? It is unbelievable. I will not take a lot of time here, but it is something else; what you are planning?

General JONES. Yes, sir. The MPS program, which was funded some years ago as a concept, has turned out to be extraordinarily useful to the marines and to the joint force in terms of not only projecting but maintaining the combat power. Just to give you a perspective, it would take 2,000 C–17 equivalent lifts to bring to bear the same amount of equipment that the ships of amphibious squadron, MPS squadron, bring to the fight.

It is a tremendous capability. The three squadrons are located strategically around the globe. They are bought and paid for. It is a leasing program actually, and the leases run out as I recall, between 2009 and 2011. So the reason we are discussing the follow-on family of ships is that around that time we will have to have come up with the solution for how to do the MPS of the future.

One of the fundamental requirements of the program is a basing function or a basing capability. We have such a capability in a place called Blount Island in Florida right now. Blount Island has been the home port for all of our amphibious squadrons, our prepositioned squadrons.

The thing I want to stress about this capability is that it is available to the warfighter immediately on arrival. Not only is it available on arrival, it is loaded in such a way that the warfighter can say, I need a certain capability, let us say 200 light armed vehicles. Those ships are so well-constructed that inside it we can roll off

200 light armored vehicles fully manned, operational, ready, gassed up, ready to go and without having to offload the entire ship.

We also have an in-stream offloading capability. We have added a hospital capability. We also have a capability of building expeditionary airfields—all contained, all paid for. There is not any warfighting commander in chief who is contemplating using marines that does not want to bring the maritime prepositioned ships into the fight.

So this is a very important program for us. It will need to be addressed in the years ahead. As I said, the leases run out on these ships starting in 2009.

Senator KENNEDY. Do they still use that cosmolene? Do they still wrap those old weapons in cosmolene that takes hours to try and get off?

General JONES. I do not think, not on our ships. Whatever is on those ships is ready to go.

Senator KENNEDY. Just finally, General. This is on the LST retirement: this committee intervened in 1994 to keep the Navy Department from selling or leasing all of the tank landing ships, the LSTs. Otherwise the Navy's overall amphibious lift capability would drop below the ability to carry the 2.5 MEBs. Although we have been technically maintaining 2.5 MEB lift, not all of the ships will be immediately available.

The LPD–17 class of ships is intended to eliminate the problem. This year the Navy plans to get rid of one or more of the Navy's LSTs, which would mean losing the vehicle-carrying capability an LST represents. I remember Admiral Boorda felt strongly about this.

Was the Marine Corps consulted in this decision?

General JONES. Yes, sir. We have one LST left and it is scheduled to be retired this year. We have, with some concern in the aggregate, a stated requirement of being able to lift the amphibious echelon of three marine expeditionary brigades. The fiscally constrained reality is that we have been for the last 8 to 10 years, I would imagine, at about 2.5 marine expeditionary brigades assault echelon lift capability and sliding a little bit below that.

So in the aggregate, that is a concern. But the CNO and the Secretary are faced with the serious situation that shows that the ships and the airplanes of the Navy, of the Navy Department, are aging at the same time, but aging in an accelerated way. Of the two, the aircraft in the Navy are significantly older than the ships are. So because we neglected to recapitalize and modernize for so long, all of the principal end items are becoming obsolete at the same time or aging at the same time.

So what we have tried to do is stop the bleeding, to use a medical term. By that is to rid our inventories of legacy systems. There are some LPD–4 class ships, for example. I have a son who is a second lieutenant in the Marine Corps and he will sail on the U.S.S. *Denver*. I sailed on the U.S.S. *Denver* when I was a captain in 1975. So we still have some legacy amphibious ships that simply have to be let go before we can recapitalize.

The cost of maintenance on old airplanes and old equipment is going through the roof and we simply cannot afford it. The longer

we hang onto them, the longer we delay being able to turn around and do something.

Senator KENNEDY. But we want to work with you on that issue. We will be in touch with you.

General JONES. Thank you, sir.

Senator KENNEDY. I want to thank again my friend and my colleague, Senator Sessions. I am very grateful to him for chairing the hearing.

General JONES. Thank you, sir.

Senator SESSIONS. We have a $48 billion increase in defense spending this year, which is the largest we have had in 15, 20 years, I suppose. But we committed a lot of that for salary and health and other things. Do you know what that leaves us fundamentally for procurement and new systems after Congress has mandated the pay raises and the other things that we felt we needed to do? How much actual new money you got to spend for procurement?

General JONES. In procurement for the Marine Corps, it is about $465 million.

Senator SESSIONS. You did better than your fellow services in terms of procurement budget, I believe; did you not?

General JONES. I do not have the comparison in front of me, but this from fiscal year 2002 to 2003 it is a significant increase for us.

Senator SESSIONS. Well, I do not think we got an overall net increase in procurement. If it did, it was not much. It was just because we made a lot of other commitments and we have some increase in research and development, but, overall, we are not where we need to be. The marines have done I think the best in those categories, but you are small compared to the other services also, much smaller. You are beginning at a point much below the others.

General JONES. Yes, sir.

Senator SESSIONS. Let me ask briefly before I close up. The Quadrennial Defense Review directed the Secretary of the Navy to develop new concepts of maritime prepositioning and high speed sealift and amphibious capabilities for the Marine Corps. What are you taking with these new concepts? Are you satisfied where we are going, and what are your hopes for the future?

General JONES. Senator, I am very excited about this concept. I think it is wrapped up in some discussions that I am looking forward to having with members of the committee and the staff and also in partnership with the Navy. It is wrapped around what I think is going to be a 21st century issue around sea-basing and how the United States is going to have to come to grips with this issue.

Simply put, it is my feeling that our access to large land bases in the 21st century is liable to be less than it has been in the 20th century in the way we have traditionally done it. We have seen the rise of sovereignty issues around the globe, nations that jealously guard their national sovereignty, and sometimes make it very difficult for us to position our forces and, if we do position our forces, use our forces in the way we would want to.

Sea-basing gives you a mobility and a sustainability piece that, if done right, will offset those sovereignty issues that are in the land-based side of the house. It will go beyond the current configu-

ration of the fleet. It will include a family, I believe, of high-speed vessels. Currently we are experimenting, as an example, with a high-speed vessel in Okinawa. Instead of waiting for strategic airlift, which is very short and very expensive and in great demand, as you might imagine, we can now, as a result of a leased ship that we obtained from Australia, take an entire marine battalion and all of its equipment, put it on a high-speed vessel, and, at a speed of 50 knots, be in the mainland of Japan the next morning, or we can be in Guam a day later than that, at a significantly lower cost.

So looking at this concept of sea-basing and looking at some of the things that were discussed in the mid-1990s, put aside the opportunity to build perhaps mobile offshore bases when you have a culture that is expeditionary like the Navy and the Marine Corps, where a 6-month rotation is the standard for our culture. If we had sea bases to go to and project our influence and our sovereignty around the world, I think you can have an exponentially different way of doing business.

So I am very excited about the whole concept of sea-basing.

Senator SESSIONS. I think that has great potential and the high speed movement by ship has great potential. Also, our subcommittee deals with airlift, too, and we know how tight that can be. To me, if we could supplement it significantly in this fashion we would be making a step forward.

General JONES. Absolutely.

Senator SESSIONS [presiding]. Senator McCain, I think I am acting chairman here again. So I am glad to recognize you. I have finished up. It is all yours.

STATEMENT OF SENATOR JOHN MCCAIN

Senator MCCAIN. Thank you very much, Senator Sessions.

Thank you, General Jones, for being here. Thank you for your leadership of the Marine Corps and thank you for the changes that you are making in the Marine Corps to help meet these new and very difficult challenges that I think we just learned in the last day or so are still quite significant.

General Jones, could I ask you about the issue of the aircraft carriers. I and eight other members of the Senate went on a trip to Central Asia a month or so ago, including Afghanistan and several other countries. But, on the way back, we took the opportunity to go out on board the *Theodore Roosevelt.* The *Theodore Roosevelt* at that time was one of four aircraft carriers that were in the region. They were on their 113th day of deployment without having been into port and they were going to have some more weeks of deployment.

That is a very long time to be at sea. It is something that the officers and enlisted men and women were very enthusiastic about because they clearly thought they were making an important contribution to freedom and combatting the war on terrorism. But I do not think you can do that very long and very often and maintain men and women in the all volunteer force.

As I mentioned, there were four aircraft carriers. My understanding is there are 11 operational aircraft carriers and one training carrier. Four of the 11 were on station at that time.

Do you not think it would be very difficult to maintain that kind of OPTEMPO over an extended period of time?

General JONES. Senator, I think the CNO and I have talked about those things and that is clearly a difficult, very challenging, and very stressful thing to do. In addition to the carriers, there were six amphibs that have been out there for a considerable period of time. I know the CNO has taken that into consideration and meeting General Franks' request for the support and the presence.

Interestingly enough, the preponderance of TACAIR that was delivered and still continues to fly over the skies of Afghanistan are coming from those naval platforms, simply because of the difficulty to project TACAIR over those distances. But your point is well taken. It is something that as a percentage of our total fleet, and if you examine the potential requirements of the global war on terrorism and the role that the naval expeditionary force will play in prosecuting that war, then we have to make sure that we do not break either the capability of the ships or the capability of the force to sustain those operations.

That is why we are working very hard to make sure that those ships get rotated in a timely manner, so that it is not an indefinite deployment, recognizing that 6 months straight is an awfully long time.

Senator MCCAIN. It just seems to me that perhaps we are not looking at the requirement for additional aircraft carriers—I am talking about big carriers—if that indeed is the case, which I think that statistics prove that it is carrier-based air that is carrying the majority of the load. It always seems to at the initial phases of conflict, until the land bases are established. I know we will, working with Kyrgystan, Uzbekhistan, etcetera, build bases that land-based air can operate from.

But it seems to me that we need to consider what the threats are and whether we have sufficient carrier capability in light of the requirement for carriers to undergo maintenance, training, etcetera. As proud as those men and women are of serving, I do not think you can send them too many times on 6-month deployments and maintain the reenlistment rates. Would you agree with that?

General JONES. Over time, committing that percentage of the force for that length of mission will probably cause difficulties in the services. But for now, because of the fact that we are at war, we are, in fact, dependent on them to provide that force from those platforms. There is not really any good other alternative. So I think we, recognizing the challenges and the stresses that places on the force, also celebrate the courage and dedication of those crews that are just doing astoundingly good work.

But your point is well taken, that how we go on in the future; it just cannot be assumed that we can operate at that tempo forever. That is why we really have been working hard to make sure that we just do not do indefinite deployments, either, 8, 9, 10 months. That is not supportable.

Senator MCCAIN. Obviously and unfortunately, some of that is dictated by the nature of the threat as opposed to planning.

General JONES. I mentioned earlier, Senator, that the 15th MEUSOC, for example, which just completed almost a 7-month deployment, was the first marine unit to go into Camp Rhino and just

returned home yesterday at San Diego, and we celebrate that return and their great contribution. But it is time for those ships and the equipment on those ships to get some tender loving care and maintenance, and it is time to get the next unit ready to go out. That is what we are about.

Senator MCCAIN. There was an article January 28th entitled "Responding to Lott, DOD Starts Funding LHD–9 and One More DDG–51," by Chris Castelli, in a publication "Inside the Navy." The article states: "At the urging of Senate Minority Leader Trent Lott, the Pentagon has made last-minute adjustments to the Navy shipbuilding plan in the Bush administration's fiscal year 2003 budget. The Pentagon put $74 million more towards a third DDG–51 destroyer and allocated $10 million to advanced procurement for a ninth amphibious ship, LHD–9, that was not previously in the budget."

General Jones, was a ninth LHD–9 in the Navy's budget, in the Navy's PBD, do you know?

General JONES. I am sorry, Senator?

Senator MCCAIN. Was an LHD–9 in the Navy's PBD?

General JONES. The advanced procurement of it was.

Senator MCCAIN. Was it in the Navy's PBD? I think I have a document here that shows that it was not.

General JONES. It was not.

Senator MCCAIN. It is interesting. According to the article this decision was made by the comptroller, which I do not expect you to comment, it is just bizarre. I have never heard of the comptroller making these kinds of decisions. It makes one wonder what kind of decision-making process is taking place over there, particularly in light of other decisions, such as the procurement of—not procurement, certainly not procurement—leasing of Boeing aircraft without even the Secretary of Defense knowing that that decision was being made.

Are you aware of an effort going on by the Department of the Navy to look at an analysis of alternatives to replace the current LHA with an LHA–R, and are you aware that the OSD Comptroller's Office deleted the funding for the study on the AoA, cutting $16 million from the RDT&E effort for the LHA replacement?

General JONES. We have supported the advanced procurement of the LHD–9. I think that is something that we need to do. We can accommodate any changes for the design recommendations as they come about. This is an ongoing discussion and we will have to see where it takes us.

Senator MCCAIN. Well, thank you, but my question was are you aware that there was an analysis of alternatives that was cut from the RDT&E effort?

General JONES. I am not aware of that, Senator.

Senator MCCAIN. Finally, tell me about the Osprey, please, and what your vision is, what it is going to cost, what needs to be done, and what is your degree of optimism is? Just give me a 2-minute blurb on the Osprey, please.

General JONES. Two major independent panels, NASA being one and the Secretary of Defense's independent panel, concluded that the problems associated with the V–22 had more to do with engineering than mature technology. So, the technology was validated

as being sound. Since that time we have been working very closely with industry to fix the engineering problems and re-engineer, for example, the hydraulic system, eliminate the chafing that was taking place within the titanium fuel lines, and to fix the software deficiencies that contributed to the anomalies that caused the last accident. We have received the support of the Under Secretary of the Defense for the Acquisition.

Senator MCCAIN. How about the comptroller? Have you got his support?

General JONES. The funding line is satisfactory. We expect to resume test flying some time in April.

Senator MCCAIN. So you are optimistic?

General JONES. I am optimistic that the technology is sound. To the extent that an infantry officer can understand the aeronautics and the physics of tilt-rotor technology, I have spent a lot of time with industry. I have walked the assembly plant and I have talked to the squadron. I have talked to the senior leadership in both Bell and Boeing who are partnering in this project.

I am personally convinced that the recommendations of the two independent panels were persuasive, and the Secretary of the Navy has also been persuaded and we are planning a return to flight that is event-driven, not timeline-driven. Despite the operational need for this, what I think is a transformational capability that will, initially, be given to the Marine Corps and the Special Operations Command, I think that we have the potential of bringing something into our combat capability that will in the case of another Afghanistan completely transform the way we do business. Had we had it this time, and it is clear that we would not have had the number of mishaps that were caused by altitude and very, very demanding flight profiles that our helicopters are simply not well equipped to do.

Senator MCCAIN. What happens to the capabilities of the Marine Corps if the Osprey program were cancelled?

General JONES. Then we very clearly are returning to a dependence on rotary wing, and we do have a general plan for that eventuality if it should happen. But it will clearly mean a step backward in terms of the potential of transformation. It will be essentially a modernization of existing capabilities that will have generally limited reach, range, and payload capability. But that is what we will have to do.

Senator MCCAIN. Is your rotary capability aging?

General JONES. It is beyond aging in the CH–46 capability, which preceded my time in the service in terms of when it came into the inventory. So the CH–46 capability must be replaced in any eventuality. The 53–Echoes are a little bit—are considerably younger, but we definitely have to address the workhorse of the fleet, the CH–46, which has an average age of 33 years as we speak. They last for a service life of 30 years, roughly.

Senator MCCAIN. So, if the Osprey were cancelled, you would have to make some very difficult decisions?

General JONES. The solution that we would have to go to would be a rotary wing solution, yes, sir.

Senator MCCAIN. With a fleet that would have to be modernized?

General JONES. Certainly, yes, sir.

Senator MCCAIN. Well, I thank you, General Jones. I hope that you will see your way clear to stop out at the Marine Corps Air Station Yuma before the weather gets too warm. You are welcome. You are always welcome out there. Even non-aviators are welcome.

General JONES. Sir, I appreciate that. I was there 2 weeks ago and I talked to all the commanders, the XOs, and the sergeants major on the subject of safety.

Senator MCCAIN. I hope that you talked to them about the quality—do not talk to them about the quality of their representatives in Washington in the United States Senate.

I thank you, General Jones, for appearing before us and I thank you for the job that you continue to do.

Thank you, Senator Sessions.

Senator SESSIONS. Thank you.

If there is nothing else, we are adjourned.

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR JOHN MCCAIN

UPDATING TRANSPORTATION

1. Senator MCCAIN. General Jones, you know that I traveled to Afghanistan with other members of this committee. While there, I heard from several Navy and Marine Corps officers that the number one concern for replacing the LHA is safety because of a stability problem or high center of gravity issue, especially with deployed aircraft. Their concern was that even with some minor fixes with fuel compensation systems, the problem will be exacerbated when the Service deploys larger aircraft, such as the Osprey (MV–22) and the Joint Strike Fighter (JSF) which are replacements for the CH–46 and AV–8B respectively. I am told that the MV–22 is twice the weight of the CH–46 and that the JSF is believed to be about twice the weight of the AV–8B.

With this in mind, would you agree that the problem could be exacerbated with the planned future aircraft and vehicles envisioned for the Marine Corps?

General JONES. In discussions with the Navy, the Fuel Oil Compensation Ship Alteration significantly improves LHA–1 class damaged stability. With this alteration, the LHA can accommodate MV–22 integration, with aggressive control of future weight growth. The capability of these ships to handle JSF and associated support has not been determined. The LHD–1 class has improved stability characteristics due to design differences relative to LHA–1 class. LHD–1 class can also accommodate MV–22 integration with aggressive weight control measures. The Fuel Oil Compensation Ship Alteration is necessary in early numbered ships of the LHD ship class to accommodate JSF integration. LHD–7 has already received the Fuel Oil Compensation Ship Alteration in new construction and has the growth allowance available from a stability standpoint to accommodate MV–22 and JSF integration.

2. Senator MCCAIN. General Jones, is the LHD a transformational replacement for the LHA class of ships, considering that the ship does not meet the requirement in planned future vehicles and aircraft for the Marine Corps or our special operations community and considering the amphibious lift requirement of 2.5/3.0 MEB?

General JONES. The ongoing LHA Replacement Analysis of Alternatives is addressing whether the LHD is a good replacement for the LHA class. Continuing to build LHDs, as well as ship design modifications to enhance the capability to operate with the new generation amphibious systems such as the Joint Strike Fighter, MV–22 Osprey, Advanced Amphibious Assault Vehicle and Medium Tactical Vehicle Replacement are currently being examined. The Analysis of Alternatives is also investigating the optimum way to reach the fiscally constrained amphibious lift capability of 2.5 Marine Expeditionary Brigades. It has long been recognized that the Marine Corps requires an amphibious ship force structure capable of simultaneously lifting the assault echelons of three Marine Expeditionary Brigades (MEB AE). The Analysis of Alternatives is expected to report out later this year and will present its conclusions at that time.

3. Senator MCCAIN. General Jones, it seems to me that the LHD is not a very transformational program, especially considering that it is the exact same hull of

the current LHA class that is based on a 1950s design. It seems to me that if the LHA(R) class ship is built to have a life span of 50 years with no further research and development (R&D) invested, then LHD–9 will be a 100-year-old design when it is decommissioned in the 2050 time frame. Are you concerned with the level of R&D funding in the fiscal year 2003 budget for a major amphibious ship like LHA(R)?

General JONES. In discussions with the Navy, there were programmed research and development funds for LHA Replacement to address new hullforms and other transformational issues in the fiscal year 2002 and 2003 budgets. Subsequently, fiscal year 2003 and 2004 research and development funding was deleted. The Navy is addressing the fiscal year 2004 funding issue as part of the ongoing budget process. Additionally, the Navy will need to increase the research and development funding line for LHA(R) if the results of the Analysis of Alternatives support a ship with more capabilities than the current LHD class.

The LHD hull is actually a modified version of the LHA hullform. Although the hull structure is similar, there have been improvements made in the LHD hull over the LHA. Additional transformational improvements have been made throughout the construction of the LHD class. The original hullform of the LHA and LHD classes were constrained by a requirement to transit the Panama Canal. That requirement was removed in 1996 and could permit significant hull improvements to be made in the planned LHA(R) class. The planned life of the LHA(R) class, like the LHD class, will be 40 years.

SHORT TAKE-OFF TACTICS

4. Senator MCCAIN. General Jones, you have stated that a JSF capable of flying from an expeditionary airfield will transform the very foundation of tactical air power. How important is a Short Take-Off and Vertical Landing (STOVL) version of the JSF to the Marine Corps? Could marine tactical aviation continue to thrive without the STOVL JSF?

General JONES. Marine tactical aviation would continue to accomplish its mission without the STOVL JSF but only at a 1980s technology level. STOVL JSF is critical to the transformation of marine aviation and provides the Marine Corps the only option to affordably reconstitute the bulk of our tactical aircraft, while providing the survivability, lethality, flexibility and supportability necessary to deal with the threat of 2010 and beyond. STOVL JSF's capability will provide marine aviation the tool to support the Marine Air-Ground Task Force in the execution of Expeditionary Maneuver Warfare. Without the STOVL JSF the Marine Corps and the Nation will suffer a tremendous loss of capability.

Why Short Takeoff Vertical Landing (STOVL)?

Transformation

In 1957, General Randolph Pate, the 21st Commandant of the Marine Corps, committed us to the vision of becoming an all STOVL force. Such a revolutionary transformation will provide the Corps with unparalleled flexibility and enhanced operational capability. Beginning in the early 1980s, the USMC embarked upon a neck-down strategy of reducing the number of type, model, and series of our fixed wing and rotary wing aircraft. The strategy reduces our fixed wing strike aircraft from seven types to one in the 2020 timeframe. Over the next decade, General Pate's vision will become reality as the Corps fields the STOVL Joint Strike Fighter (JSF), culminating our efforts to neck-down our fixed wing strike aircraft and to complement our MV–22 Osprey tilt-rotor aircraft. Today, the USMC is committed to an All-STOVL force and has foregone the purchase of a follow-on legacy aircraft to invest in the next generation of tactical fighter aircraft.

Expeditionary Ethos

Expeditionary Maneuver Warfare (EMW), the Marine Corps' capstone concept for the 21st century is built on our core competencies and prepares the Marine Corps, as a total force, to meet the challenges and opportunities of a rapidly changing world. EMW is the union of our maneuver warfare philosophy, expeditionary heritage, and the concepts by which we organize, deploy, and employ forces. Expeditionary forces must be adaptable, with the capacity to commit to a specific mission, while remaining ready to rapidly shift to an entirely different one. They must also be capable of rapidly increasing or decreasing the combat power available in an area of operations. Without a STOVL capability, Marine Expeditionary Forces cannot fully exploit the advantages of our EMW concept. The STOVL JSF represents the future of the Aviation Combat Element (ACE) in Marine Expeditionary Forces. Our

long-term strategy is to replace our Harriers and F/A–18 Hornets with the STOVL JSF. The performance characteristics of the JSF will enable it to operate from the decks of both amphibious ships and aircraft carriers, as well as from expeditionary airfields located well forward-close to the ground troops it will support. Most recently, we proved the validity of STOVL aircraft in a tactical role with the AV–8B Harrier's forward deployment into Kandahar, Afghanistan. Our Harriers launched from Amphibious Readiness Group (ARG) shipping and forward based at Kandahar to provide close air support to coalition ground forces.

Spectrum of Conflict

Since 1990, Naval forces have averaged one contingency response every 5 weeks. These crises have ranged across the entire spectrum of operations, from peacekeeping and disaster relief to regional conflict. With STOVL JSF deployed with our Navy/Marine Corps team, we stand ready to respond across the full spectrum of conflict from humanitarian operations to major theater war. Because the hardware and software architectures of our current TACAIR platforms are over a decade old, they have a very limited ability to integrate new technology being developed to deal with emerging threats. While threat systems capabilities increase, the combination of stealth, advanced countermeasures, and improved pilot situational awareness provide the JSF the ability to fight and survive against the rapidly emerging Surface-to-Air Missile (SAM) threat. Specifically, as the SAM threat continues to evolve and proliferate, stealth will become important to aircraft survivability.

Affordability

The purpose of the JSF Program is to affordably develop the next generation strike fighter weapons system to meet an advanced threat (2010 and beyond). A 1980 Naval Air Engineering Center Sea-Based Air Master Study concluded that STOVL aircraft require 30 percent less deck space for operations. Additionally, the study reported that an Air Wing equipped with STOVL aircraft would generate 30 percent more sorties for targets out to 300nm and 15 percent more sorties for targets out to 700nm. These findings have direct implications on affordable future ship design for the CVN and LHA replacement classes. The Cost and Operational Performance Trade Studies used in requirement development and the independently conducted Analysis of Alternatives have shown that JSF has struck the right balance between performance and affordability. Commonality across the family of JSF variants is the key to affordability. All of the variants will share a common avionics architecture, a common airframe, and a common core propulsion system—greatly reducing the manufacturing/procurement costs. JSF will replace almost 3,000 aircraft within the USAF, USN, and USMC and is the affordable solution to the TACAIR inventory obsolescence problem that we currently face.

Conclusion

The STOVL JSF incorporates leap ahead technology with developing concepts such as Joint Vision 2020 and our overarching concept of Expeditionary Maneuver Warfare to establish a truly CINC-relevant aircraft of choice. STOVL JSF is critical to the success of the Marine Corps in the 21st century, as it will solve the significant problems of age and attrition currently facing Marine TACAIR. The STOVL JSF will provide the Marine Corps with a stealthy, state-of-the-art, high performance, multi-role jet aircraft that can operate within the expeditionary environment. The Marine Corps begins receiving JSFs in 2008 with a fully operational, deployable squadron scheduled for stand up in 2010. The combination of stealth, basing flexibility, and superior performance will revolutionize air warfare and Naval Aviation well into the 21st century.

TRAINING RESTRICTIONS

5. Senator MCCAIN. General Jones, the Marine Corps success in Operation Enduring Freedom has shown the importance of proper training for the air/ground team, especially close air support. With serious encroachment issues facing many military training ranges today, including land, airspace, and bandwidth, and restrictions being placed on training such as on Vieques Range, how has the relevance in air and ground combat training for Navy and Marine Corps aircrews been affected at the Barry M. Goldwater Range (BMGR)? What prospects do you see for even greater use of the BMGR in the future?

General JONES. My most important responsibility as Commandant of the Marine Corps is to ensure that our marines and sailors are well trained and ready for the dangerous missions we routinely ask them to perform. This is not an abstract requirement. For the Atlantic Fleet Navy and Second Marine Expeditionary Force (II

MEF) units, the most rigorous, realistic training that allows us to certify our forces as combat ready is provided at the training range on and around the island of Vieques, Puerto Rico.

Recently, marines and sailors from the 2,200 strong 26th Marine Expeditionary Unit Special Operations Capable (MEU SOC) played an integral role in air and ground combat operations during Operation Enduring Freedom in Afghanistan. For these units, Vieques provided vital predeployment training such as naval gunfire shore fire control party training and other supporting arms coordination exercises. In addition to performing other mission essential tasks, this training routes aircraft from a holding position to a marine infantry unit on the ground that needs close air support fires. To provide this service requires detailed coordination. In Vieques, marine air support elements are truly able to master their skills. From communications with numerous Navy ships to controlling and directing dozens of aircraft into an objective area and safely out again, marines gain immeasurable experience and confidence in their abilities.

If the training opportunities at Vieques are lost permanently, the Navy can still conduct naval gunfire training using the IMPASS system, an array of sonobuoys at sea. Unfortunately, this system does not provide the opportunity to train naval gunfire control parties, as this is an acoustically cued correction system vice a visually cued correction system. In combat, naval gunfire observers make adjustments onto a target using direct visual impact observations. This degradation of combined arms training due to encroachment will have a deleterious effect on our marines' combat readiness.

The western portion of the Barry M. Goldwater Range is part of the Yuma Training Range Complex (YTRC), which also includes the Chocolate Mountains Aerial Gunnery Range (CMGR), and approximately 10,000 square miles of associated Special Use Airspace in Southwest Arizona and Southeast California. The BMGR supports intermediate and advanced level training in all six functions of marine aviation: assault support, control of aircraft and missiles, offensive air support, electronic warfare, tactical air reconnaissance, and anti-air warfare. Training conducted at BMGR provides tactical employment of MEF units and individual combat skills training in a high-stress, simulated high-threat, realistic environment. Other services also train on the range to include Navy, Air Force and National Guard units.

Current capabilities of the BMGR West allow for: (1) accurate scoring of inert ordnance delivery on a circular raked range, unscored inert ordnance delivery on a realistic target complex, and simulated ordnance deliveries in realistic target complexes; (2) sufficient maneuver airspace for fixed wing and rotary wing aircraft to conduct tactical maneuvering; (3) response to third generation threat emitter systems (Fourth generation EW emitters are only available for students during WTI courses. The emitters are rented at high cost.); (4) tracking events on Tactical Air Combat Training System (TACTS) from medium altitude (5,000 feet above ground level) to high altitude (80,000 feet above ground level); and (5) limited debrief capability of aircrew counter-threat response effectiveness.

Desired future capabilities for the BMGR include: (1) integration of BMGR East (Air Force) and West (Marine Corps) aircraft tracking systems; (2) tracking aircraft to the surface and vehicles; (3) fourth generation threat emitters; (4) target systems with multi-spectral cuing; and (5) use of advanced weapons systems such as Joint Strike Fighter, MV–22 Osprey, Joint Direct Attack Munitions (JDAM) and Joint Stand Off Weapons (JSOW). Intrinsic to these future capabilities are myriad unfunded upgrades, such as secure communications, high capacity fiber optics, communications and data relays, etc.

The nearby Chocolate Mountains Aerial Gunnery Range in California supports live fire integration of aviation and supporting arms. The Marine Air Ground Task Force Training Command (MAGTFTC) in Twenty-nine Palms, California closely integrates the full compliment of capabilities for aviation and ground combat units in a live fire combined arms training environment. As at Vieques, San Clemente Island off the coast of Southern California provides for naval gunfire support training.

Although the relevance of aircrew training in the BMGR will increase as a result of lost training opportunities at Vieques, prospects for greater use of the BMGR in the future are limited due to the effects of encroachment. Encroachment upon Marine Corps properties is principally due to regulatory requirements that place the burden of compliance/action on military installations and environmental groups/commercial interests. They want the government to either accept environmental mitigation on our land or preserve existing on-base conditions to the detriment of current and future mission capability.

BMGR currently provides habitat for two species listed under the Endangered Species Act—the Sonoran Pronghorn antelope (designated) and the Flat-tailed horned lizard (proposed). The presence of these protected species places significant

restrictions on approximately 320,000 acres (46 percent) of the BMGR West. Similarly the Sonoran Pronghorn occupies 445,000 acres (42 percent) of the BMGR East, which is under U.S. Air Force control but is also used by fleet marine units and Marine Aviation Weapons and Tactics Squadron One (MAWTS–1). Although civilian recreational use and the two protected species have not prevented required training mission accomplishment, they limit use of certain portions of the range. For example, when Pronghorn antelope are present in a target area, fighters laden with ordnance and fuel must loiter until the antelope leave, or, cancel the sortie without completing their assigned mission.

Marine Corps installations manage training areas and ranges such as the BMGR, and provide logistical support for all levels of the Marine Corps organization from the individual rifleman/aviator, all the way to the MAGTF. Additionally, other services deploy to our installations and train on Marine Corps ranges. The ability to "train as we fight" in the air, on land and sea has continually diminished since the post-World War II era as a result of encroachment. During the post war period, the complexity, range, and destructive force of weapons and weapons delivery systems increased exponentially. This difficulty is further compounded by the fact that our World War II installations and training areas generally did not expand as weapons increased in range, destructive force and lethality.

Encroachment issues are many, complex, and involve multiple Federal, state and local agencies, as well as Congress and the public. The impact of encroachment is also broad—affecting our ability to execute realistic air, ground, and amphibious training across the Nation, as well as beyond its borders. In spite of the many encroachment pressures facing our ranges, we are dealing with the situation in order to support the current aviation training requirements in the BMGR. This is in no small part due to overwhelming support from the community, state and local government who have taken affirmative action, within their means, to protect DOD installations in Arizona from encroachment.

The cumulative impacts of encroachment, however, cause operational and training restrictions. These restrictions result in less realistic training, which in turn degrades combat readiness. All forms of encroachment that restrict land, airspace, and bandwidth use degrade combat readiness.

NAVAL SURFACE-FIRE SUPPORT

6. Senator MCCAIN. General Jones, with the cancellations of the Land Attack Standard Missile (LASM) program and the Navy's DD 21 land attack destroyer program, what are your concerns for the future of naval surface fire support?

General JONES. My concerns regarding the near-term Naval Surface Fire Support enhancements are two-fold. First, there is no current program of record that adequately addresses the Marine Corps' intermediate range fire support requirements. The LASM was the system being developed to address this requirement. The Tactical Tomahawk (TACTOM) missile, although technically capable of at least partially meeting this requirement, is foremost a strike weapon system and is likely to be employed in a fire support role only in extreme situations.

I am also concerned that the planned procurement of Extended Range Guided Munition (ERGM) projectiles will be insufficient to provide sustained fire support for the Nation's expeditionary maneuver forces. At the current planned procurement rate, there will exist less than two ship fills of this munition per ERGM-capable ship delivered in the FYDP.

My principle concern for the far-term is that DD(X) will be fielded with less capability and in fewer numbers than previously planned in the DD 21 program. Just as DD 21 was to be the key element in fully meeting our Naval Surface Fire Support requirements, so now is DD(X) and its associated weapons systems a vital element in realizing the full potential of Expeditionary Maneuver Warfare. The Advanced Gun System (AGS), with a family of extended-range 155mm projectiles, and the Advanced Land Attack Missile (ALAM) are essential elements of the fire support system that will provide responsive, all-weather fire support "from the sea" in support of forces operating throughout the depth of the littoral battlespace.

QUESTIONS SUBMITTED BY SENATOR BOB SMITH

EQUIPMENT OPTICS AND DESIGNATION

7. Senator SMITH. General Jones, in the *Marine Corps Times* on February 18, 2002, there was an article by Christian Lowe about the Corps' Combat Assessment Team. I want to applaud you and the Corps about your efforts to critique quickly

and accurately, and improve your own performance in the war on terrorism. Candid and unfettered introspection is important to get good "lessons learned" from combat. This introspection, followed by progress in fixing the problems, is even more impressive. The article highlighted some immediate fixes your assessment team may have facilitated to better support your marines in the field.

One issue I do have a concern with is the marines' continued ability to locate, designate, and hand off targets for attack aircraft—a subject mentioned in the article—and the growing importance of night vision devices and laser target designators for the individual "trigger pullers" who are on the line each and every day. I understand you are actively working to better improve your ties with, and coordination with, Special Operations Forces, who have definitely "earned their pay" in Afghanistan by working in these areas and with this type of equipment. I would expect that to work with these forces, you, too, need comparable equipping of your marines.

Can you please explain the Corps' plan to improve these two battlefield functional areas?

General JONES. The war against terrorism highlighted the complementary capabilities of crisis response forces, the Marine Corps, and forces assigned to the United States Special Operations Command (SOF). Restraints imposed by today's environment magnify their contribution because they are unencumbered by the requirements for extensive regional infrastructure. Moreover, as demonstrated during the recent campaign, the surgical precision of SOF coupled with the combined arms punch of forward deployed amphibious-based Marine Air-Ground Task Forces prove not only their individual utility, but illustrate the synergy in overcoming specific challenges such as:

- the remote and austere nature of the battlefields where forces prosecute our Nation's campaign against terrorism.
- host nation concerns regarding the presence of American forces within their borders.
- the need to conduct strike operations while maintaining increased operational security.

The recent events highlighted the need to establish service-level links between SOCOM directorates and their counterparts within the Marine Corps to develop detailed areas of mutual interest spanning the entire continuum of service level concerns. We believe this will enhance the mutual support our two organizations can provide one another. Through a recently signed Memorandum of Understanding (MOU) between the USMC and SOCOM, the focus of effort will be to:

- examine current capabilities and missions in order to leverage the unique capabilities of each organization, thus enhancing interoperability.
- establish and continue the interface between CONUS-based and theater-based SOF and deploying Marine Air-Ground Task Forces.
- synchronize USSOCOM and USMC warfighting developments, as well as material research and procurement initiatives.

We believe the USSOCOM-USMC Board is a forum for Special Operations Forces (SOF) and the Marine Corps to interface and coordinate with regard to common mission areas and similar procurement initiatives.

How will we continue to improve target identification and designation using night vision devices and laser target designators? There is one program of record: Target Location, Designation, and Hand-off System (TLDHS). TLDHS is a Modular Universal Laser Equipment (MULE) replacement with an IOC of 4th Quarter, fiscal year 2004. TLDHS can both target locate and designate and has night thermal capability. The Marine Corps Systems Command (MCSC) is looking at an interim Laser target location fix through a commercial off-the-shelf (COTS) solution that could make a binocular type device available this summer. An interim designator COTS solution would take 11 months manufacturers lead time to produce.

As a result of 15th MEU Aviation Command Element (ACE) Operation Enduring Freedom lessons learned and back briefs from the Marine Corps Combat Action Team, the Commanding General, Marine Corps Combat Development Command, signed a Statement of Need (SON) for the immediate procurement of 180 precision targeting systems. Presently, the Marine Corps employs the AN/GVS–5 Laser Observation Set to assist fire support observers in determining distance to a target. The AN/GVS–5 does not determine azimuth or inclination, which are critical in determining an accurate target location (target grid coordinate generation). It does not possess a data interface capability. Operating force feedback and experimentation have identified the deficiencies of this legacy system. MCSC has a funded program called the Advanced Eye-Safe Laser Rangefinder (AEROS), which addresses the same requirement; however, programmatics dictate a system will not be fielded until fiscal year 2005. Through market research, MCSC has identified a COTS solu-

tion (Leica Vector/Viper II) to meet the SON (also being used presently by SOCOM in response to their Combat Mission Needs Statement). While this solution does not completely meet the requirements spelled out for AEROS, it is immediately available in mass quantities and does meet the requirements of the SON. MCSC evaluated this system the week of 25 March 2002. If funding could be identified and a production decision reached, the Leica Vector could be available to the operating forces as early as June 2002. The PTS–180 program will also serve as a test bed for the AEROS program, providing feedback on current capabilities and impacting future operational requirements. AEROS is not a redundant program to TLDHS. AEROS is a separate program meant to compliment TLDHS capabilities.

EQUIPMENT AND EQUIPPING—INDIVIDUAL PERSONNEL

8. Senator SMITH. General Jones, one aspect of your testimony that I find heartening is your stated "highest priority"—your marines, their families, and civilian workforce. The "people vs. equipment" balance is one of the Marine Corps hallmarks: take care of the marines, and the marines will take care of the mission. In this view, I would like to know if the current proposed budget meets the needs for some of the basic items—initial equipment issues, individual gear improvements, cold weather clothing, special use items, and so on—that will improve the quality of life for the marines in the field and thus further improve their performances.

General JONES. The proposed budget for fiscal year 2003 meets the currently identified needs of the Marine Corps in the area of initial equipment issues over the course of the FYDP. As a result of the balancing required-to-fund competing requirements across all of the Marine Corps appropriations, many items will not be fully fielded until fiscal year 2008 or later, thus, additional funding would accelerate acquisition of the initial issue items. With new and improved gear, marines will gain a significant advantage in terms of their lethality, survivability, and mobility. Funding these equipment requirements will ensure that marines will maintain a competitive advantage over the enemy by being more mobile, lethal, comfortable, rested, and ready to fight.

9. Senator SMITH. General Jones, I have seen several press accounts indicating that we may not have had sufficient numbers of linguists trained in the languages spoken in Afghanistan, such as Dari and Pashto, to communicate with the locals as quickly as we would have liked. As a force provider who works for and with the regional CINCs, and in preparing expeditionary units ready to respond around the world, do you have enough foreign language speakers in the appropriate language skills to provide the essential link between your forces and the native populations? Would you have liked to have more, and do we need more language training programs?

General JONES. In 1996, Headquarters Marine Corps established the 8611 Additional Military Occupational Specialty (AMOS) to identify marines with critical heritage foreign language skills to serve as interpreter/translators. In 1999, Headquarters Marine Corps initiated an aggressive effort to more accurately screen and identify all heritage foreign language speakers as they entered our ranks. The early identification of heritage speakers in "less-commonly taught" languages such as Dari, Urdu, and Pashto and the assignment of these heritage language speakers as translators were essential in allowing the Marine Corps to meet emerging contingency foreign language requirements.

Under the Marine Corps' Language Identification Program (LIP), marines are screened during the recruiting process. Those determined to have heritage foreign language skills then have their language proficiency validated for potential future assignment. The success of this effort over the last 2 years has been demonstrated by the identification of thousands of native speakers who can be temporarily assigned additional duty as translators/interpreters, thereby ensuring that foreign language skilled marines in Intelligence billets can remain focused on their assigned primary mission.

During 1998, in an effort to stabilize manning of the Intelligence Occupational Field, Headquarters Marine Corps temporarily doubled the number of basic language seats at the Defense Language Institute (DLI). As a result, the Marine Corps currently has approximately 320 Modern Standard Arabic (MSA) speakers in the active Force. MSA is a common language linking the myriad extremist groups targeted in support of Operation Enduring Freedom (OEF). This robust inventory of Marine MSA speakers is a considerable asset that can be leveraged in response to emerging OEF foreign language requirements.

The Marine Corps continues to search for more efficient ways to identify, screen and train Marines with foreign language skills to support operational and intelligence requirements. The Marine Corps' foreign language requirements are identified by the Marine Operating Forces in response to planning guidance via the assignment of appropriate Military Occupational Specialty (MOS) billets on unit Tables of Organization (T/O). Given the constraints of authorized Marine Corps endstrength and the large set of languages required to meet projected military missions, the Marine Corps has traditionally focused its foreign language training program on those core languages spoken in areas where large-scale military action is either planned or anticipated. The small population of marines with heritage foreign language skills in the "less-commonly taught" languages such as Dari, Urdu, and Pashto has been augmented through the Headquarters Marine Corps directed action of selectively cross-training existing linguists at the DLI, and through the conduct of un-programmed contract language courses in a subsequent language. Additionally, as requirements are validated, marines are selectively recruited and cross-trained in these "less-commonly taught" languages during lateral moves into a new MOS or during reenlistments.

During 1999, Headquarters Marine Corps initiated a comprehensive review of the Marine Corps' foreign language requirements. As a result of this review, the Marine Operating Forces were directed to determine their existing and anticipated foreign language requirements in an effort to better identify and project both the number of speakers and the variety of languages they require. In March 2001, the Director of Intelligence (DIRINT) approved a plan to restructure the Intelligence occupational field to meet the increase in requirements for speakers in "less-commonly taught" languages. Implementation of the plan in February 2002 resulted in the Headquarters Marine Corps directed modification of unit T/Os, leading to the addition of 122 intelligence linguist billets in a variety of "less-commonly taught" languages. The Marine Corps is now executing a 5-year plan to recruit and train a sufficient number of marines to fill thesenewly identified billets.

Following the September 11 terrorist attacks on the United States, the Secretary of Defense tasked the Services to identify emerging language training requirements to support the OEF campaign. Headquarters Marine Corps compiled a list of projected language requirements and, in cooperation with the DLI, implemented a training plan in December 2001 to satisfy the identified training shortfalls. The aggressive assignment of heritage language speakers as translators, combined with the quick response of DLI in setting up language training courses to meet the Marine Corps' contingency training requirements, has allowed the Marine Corps to successfully meet its current operational language requirements.

QUESTIONS SUBMITTED BY SENATOR SUSAN M. COLLINS

WEAPONS—GRENADE LAUNCHER

10. Senator COLLINS. General Jones, the Marine Corps Warfighting Lab has been a great asset to introduce and prove out innovative technologies for the Corps and our Armed Forces. I am familiar with the Advanced Lightweight Grenade Launcher/Striker program (MK47Mod 0), which is currently being tested at the Warfighting Lab. What can you tell me about the Marine Corps' desire to deploy this launcher?

General JONES. The final configuration of the MK47 has just been baselined this month and the Marine Corps Warfighting Lab (MCWL) took delivery of its first two fully capable prototype MK47 "Striker" grenade launchers on 5 April 2002. These guns are of the same configuration as those scheduled for Operational Assessment (OA) by USSOCOM forces at Aberdeen Proving Grounds in May 2002.

The Marine Corps, via MCWL, will experiment with our two weapons and monitor the USSOCOM OA in order to collect the data needed to adequately assess and evaluate the MK47's potential to increase the combat power of marine units.

The decision on whether we will deploy the MK47 in the Marine Corps will be influenced by: (1) the performance of the MK47 during USSOCOM's OA; (2) U.S. Marine infantry units' operational assessment of the MK47s during 4th quarter fiscal year 2002 and 1st quarter fiscal year 2003; (3) successful development of the airburst capability for the 40mm ammunition for the MK47; and (4) the level of support for the weapon from the Marine Corps Infantry Operational Advisory Group.

The role MCWL plays in the Expeditionary Force Development System (EFDS) is to find technology that appears to have potential for increasing combat capabilities, then prove through experimentation, whether or not that technology is worth pursuing. Once experimentation and assessment determines the MK47's potential,

the decision will be made on whether the weapon is a candidate for acquisition and deployment.

[Whereupon, at 5:11 p.m., the subcommittee adjourned.]

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2003

TUESDAY, MARCH 19, 2002

U.S. SENATE,
SUBCOMMITTEE ON SEAPOWER,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

MAXIMIZING FLEET PRESENCE CAPABILITY AND SHIP PROCUREMENT AND RESEARCH AND DEVELOPMENT

The committee met, pursuant to notice, at 2:39 p.m., in room SR–222, Russell Senate Office Building, Senator Edward M. Kennedy (chairman of the subcommittee) presiding.

Committee members present: Senators Kennedy, Landrieu, Reed, Warner, Sessions, and Collins.

Majority staff member present: Creighton Greene, professional staff member.

Minority staff members present: Judith A. Ansley, Republican staff director; Gary M. Hall, professional staff member; Ambrose R. Hock, professional staff member; Thomas L. MacKenzie, professional staff member; and Carmen Leslie Stone, special assistant.

Staff assistants present: Daniel K. Goldsmith and Andrew Kent.

Committee members' assistants present: Brady King and Christina L. Martin, assistants to Senator Kennedy; Frederick M. Downey, assistant to Senator Lieberman; Marshall A. Hevron, assistant to Senator Landrieu; Elizabeth King, assistant to Senator Reed; Benjamin L. Cassidy, assistant to Senator Warner; Arch Galloway II, assistant to Senator Sessions; Kristine Fauser, assistant to Senator Collins; and Derek Maurer, assistant to Senator Bunning.

OPENING STATEMENT OF SENATOR EDWARD M. KENNEDY, CHAIRMAN

Senator KENNEDY. The subcommittee meets this afternoon to discuss Navy shipbuilding programs intended to meet Navy and Marine Corps future operational requirements.

We will also discuss actions that the Navy might take to maximize fleet presence capability in support of theater combat command requirements to have naval forces on station and operating in the areas of responsibility.

We will hear from two panels of witnesses today. Rear Admiral Miles B. Wachendorf, Director of the Strategy and Policy Division

in the Office of the Chief of Naval Operations will discuss the options for increasing forward presence on the first panel.

On the second panel, we will hear from two witnesses about Navy shipbuilding and research and development (R&D) programs: The Hon. John Young, Assistant Secretary of the Navy for Research, Development, and Acquisition, and Vice Adm. Michael Mullen, Deputy Chief of Naval Operations for Resources, Requirements, and Assessments.

While some may put the primary emphasis on the shipbuilding portion of today's hearing, you should give due attention to the important matters of ways to provide the forward deployed forces that our area combat commanders need to support their operations.

For the shipbuilding portion of the hearing, the focus will be on the modernization of the Navy fleet. I believe that the fundamental problem that we must deal with in this subcommittee is achieving the proper level of modernization to support tomorrow's readiness.

Without adequate modernization, we could be faced with a situation of having forces without necessary capabilities, or we could even be in a position of trying to support theater combat commander requirements with forces that are too small to meet their requirements.

We all know that our men and women in the Armed Forces will respond admirably in any crisis, just as they are doing to support the operations in Afghanistan. However, over the long-term, we cannot count on making up for inadequate shipbuilding investment by asking our troops to stay on much longer deployments. They are spending less time at home with their families between deployments.

This leads the subcommittee to the desire of ensuring that we are getting the most forward presence capability from our fleet, whatever the number of ships in the fleet. We owe it to our sailors and marines to ensure that we are doing all we can to avoid resorting only to longer deployments or reduced at-home time when we are trying to meet forward presence requirements.

We also owe it to the taxpayers to ensure that they are getting the maximum presence capability for every dollar invested in the Navy. To that end, Senator Sessions and I sent a letter to the Secretary of the Navy and the Chief of Naval Operations asking them to review the question of whether additional operational days could be made available to the regional commanders in chief without increasing the number of ships and without increasing the length of 6-month deployments. Without objection, we will include a copy of that letter in the record of the hearing.

[The information referred to follows:]

United States Senate
COMMITTEE ON ARMED SERVICES
WASHINGTON, DC 20510-6050

March 1, 2002

Honorable Gordon R. England
Secretary of Navy
1000 Navy Pentagon
Washington, D.C. 20350-2000

Admiral Vernon E. Clark
Chief of Naval Operations
Navy Department
Washington, D.C. 20350-2000

Dear Secretary England and Admiral Clark:

The fiscal year 2003 budget request and accompanying Future Years Defense Program the Administration just submitted does not allocate sufficient investment to build the number of ships required to recapitalize the fleet.

However, there may be opportunities to make additional operational days available for a given level of fleet size that could reduce the operating tempo demands on individual Navy personnel and help mitigate the impact of reduced recapitalization of the shipbuilding accounts.

We believe that the Department needs to explore at least four focus areas to determine if additional operational days could be made available to the regional commander in chiefs without increasing the number of ships and without increasing the length of six month deployments. Although you may have identified other options, the ones which occur to us are:

1. Assign additional ships and submarines to homeports closer to their areas of operation. This is sometimes referred to as forward homeporting.

2. Assign a ship to remain in a forward area of operations and rotate crews. Although not typically rotated in forward operating areas, the dual crewing or "blue" and "gold" crews on SSBNs are an example of such a concept.

3. Retain ships to the end of their full service life by investing in the support funding needed to keep them. For example, we might decide that keeping DD-963s in active service might make sense for the capabilities they provide (such as presence and antisubmarine warfare capability), rather than retiring them because they are not adequate to meet certain threats (because they do not have the very latest anti-air warfare systems).

4. Preposition additional ships in a forward operating areas that would be maintained by very small crews during normal circumstances. This concept would be analogous to the manner in which certain Ready Reserve Force (RRF) ships are kept ready to begin operations in just a few days.

Based on Secretary England's testimony before the Armed Services Committee on February 12, 2002, the Navy is apparently investigating other approaches to getting more operational time from our existing fleet of ships.

We fully appreciate that each of these focus areas mentioned above, and other options the Navy may be considering, have operational, personnel, maintenance, fiscal, and political challenges and impacts. We intend to address these issues during our upcoming review of the President's budget request. For this reason, it would be useful to the Seapower Subcommittee if the Navy would undertake the task of documenting and evaluating the challenges and impacts in each of the focus areas mentioned and other areas you consider applicable. Enclosed is a short information paper, *"Obtaining the Maximum Number of Ship Operational Days Underway for a Given Number of Ships in the Fleet,"* which provides additional amplifying information on the background and focus areas of this issue.

The superb performance of the Navy and Marine Corps team in Operation Enduring Freedom and in the overall war on terrorism underscores, once again, the importance of ships that are flexible, respond quickly, and support continuous joint combat operations.

We look forward to working with you on this issue.

Sincerely,

Jeff Sessions
Ranking Member
Seapower Subcommittee

Edward M. Kennedy
Chairman
Seapower Subcommittee

Obtaining the Maximum Number of Ship Operational Days Underway for a Given Number of Ships in the Fleet

Navy, Secretary of Defense, shipbuilding industry, and independent witnesses have testified that the Navy is not investing sufficient funds in new ship construction to recapitalize the fleet to maintain about 300 ships. The Secretary of Defense report to Congress, dated June 26, 2000, and the Congressional Research Service testimony concurred that a steady state building rate of 8.7 ships annually is required to maintain at least 306 ships. The building rate has been significantly lower than that since 2000 and is projected to remain significantly lower in the near future. In addition, Navy witnesses have testified that about 300 ships are required to carry out the National Security Strategy. Navy operational commanders have testified that they do not have sufficient ships, even at the present level of 316 ships, to respond to regional warfighting commander in chief (CINC) requests for forces.

We understand that the Navy will retire DD-963-class ships early, resulting in a drop in force structure below the Quadrennial Defense Review surface combatant level of 108 and the attack submarine level of 55.

The bottom line is there is insufficient investment available to build the number of ships required. However, there may be opportunities to get more out of the ships in service which would reduce the required number of ships. At least four focus areas should be explored to determine if additional operational days could be provided without increasing the number of ships. These focus areas include:

1. Assign additional ships and submarines to homeports closer to their areas of operation. This is sometimes referred to as forward homeporting.

2. Assign a ship to remain in a forward area of operations and rotate crews. Although not typically rotated in forward operating areas, the dual crewing or "blue" and "gold" crews on SSBNs are an example of such a concept.

3. Retain ships to the end of their full service life by investing in the support funding needed to keep them. For example, we might decide that keeping DD-963s in active service might make sense for the capabilities they provide (such as presence and antisubmarine warfare capability), rather than retiring them because they are not adequate to meet certain threats (because they do not have the very latest anti-air warfare systems).

4. Preposition additional ships in a forward operating areas that would be maintained by very small crews during normal circumstances. This concept would be analogous to the manner in which certain Ready Reserve Force (RRF) ships are kept ready to begin operations in just a few days.

Each of these focus areas have operational, personnel, maintenance, fiscal, and political challenges and impacts. Each challenge and impact should be documented and evaluated.

1. Forward Homeporting

There are a number of potential forward homeports in addition to the current forward ports of Yokosuka and Sasebo, Japan, Sigonella, Italy, Bahrain, and Guam. Forward homeporting includes moving a ship and crew to a facility closer to the area in which the CINC requires forces. Because the ship operates from the forward facility, the transit times (two weeks to one month each way) from U.S. bases would be eliminated. The elimination of long transits results in more operational days available for CINC missions in a theater of operations.

2. Rotating Crews While Keeping a Ship or Submarine in a Forward Operating Area

A crew would operate a ship for six months in a forward operating area supporting CINC requirements and then turn the ship over to a new crew that would operate the ship. Such a concept of operations would eliminate the transit time between the ship's homeport and the operating area. Unlike the first focus area, this approach would not require personnel and their families to move to a forward based homeport. Crews could basically swap ships, one in the U.S. homeport for one operating forward.

The limiting factor in providing ships for CINC requirements is usually captured within the "CNO OPTEMPO goals," which encompass the requirement for crew rest (family time as well as less stressful operations), maintenance, and training. This option would be dependent on a ship's material condition and maintenance plan required to improve the annual number of operational days underway. This would be a variation of the "blue" and "gold" crew concept used on SSBNs. It differs in that SSBNs usually return to U.S. bases that are designed to provide higher levels of maintenance to support higher ship operating tempo.

3. Retain Ships to the End of Their Full Service Life

For a number of years, the Navy has been retiring surface combatants and submarines prior to the time that they have completed their projected service lives. Retirements of combat-effective ships occurred most frequently to bring the force levels down to those directed by the then-current Administration (as identified in such direction as the 1997 Quadrennial Defense Review). Retiring ships early generates unplanned additional requirements for ships in order to maintain specific levels of operating days in support of CINCs. For instance, retiring 30 *Spruance* class destroyers at 25 years of service results in losing 300 ship years. This would translate into requiring an additional 12 ships over what was projected for replacement of those ships. Instead of having to build 30 ships, 42 ships would have to be built to maintain force

structure for an equivalent number of ship years. Upgrading ships to retain combat effectiveness and continuing to operate them for as long as possible would probably be less expensive than building new ships.

4. Preposition Additional Ships in Forward Operating Areas

Ships could be prepositioned and maintained in forward operating areas and then activated if a contingency arises. This potential approach could provide a surge or response capability which would not require as long a transit time as moving a ship from a U.S. homeport to a forward area. It would also demonstrate a commitment to a geographically important area without the cost of maintaining a fully crewed ship. The U.S. has experience activating prepositioned cargo ships which have relatively small crews but prepositioning and subsequent activation has not been done with a combatant which has a relatively large crew.

Senator KENNEDY. We will look forward to hearing first from Admiral Wachendorf on our range of options that we might consider for increasing the level of forward presence for a given fleet size.

On the second panel, we will hear from John Young and Vice Admiral Mullen on the shipbuilding construction and development program's fiscal year 2003 budget request.

Everyone can agree that we will continue to need strong naval forces to protect our interests in many areas overseas. We may have to change our approaches in some areas, but we will still need to ensure that we do not lose the very real advantages that our Navy and Marine Corps so skillfully provide.

Within that context, there are a number of issues, programs, and areas that we should discuss with the witnesses today including: attack submarine programs and force levels, including the option of converting the Trident ballistic missile submarines to submarines that carry the cruise missiles; aircraft carrier modernization efforts, including the Navy's evolutionary development of new capabilities and technologies to increase future capability and reduce demands on our personnel and a planned delay of the CVN(X) program; surface combatants, including the DDG–51 Aegis destroyer and the Navy's program to field the next generation of combatants and DD(X) program; amphibious ships, including the delays and cost increases in the LPD–17 amphibious transport dock program; and the budget request to continue the incremental funding for the LHD–8 amphibious assault ship.

These are all important issues, and we will look forward to hearing your testimony today and working with you as we work our way through them.

Before I recognize the witnesses, I would like to recognize Senator Sessions.

Also, it is a great pleasure to welcome the Ranking Member of the full committee, Senator Warner.

Senator WARNER. Thank you, Mr. Chairman.

Senator KENNEDY. Whenever a Navy flag goes up, John Warner is present. Any of us who think we have any authority or power around here are always reminded that John Warner was the Secretary of the Navy. [Laughter.]

As good a job as he does in making sure we have a strong national security defense, we always know that he tips a little toward the United States Navy. We are always glad to have him here.

Senator WARNER. I am thankful for the very generous remarks of my Chairman. [Laughter.]

You and I have jockeyed in the position of Chairman and Ranking Member of this subcommittee for many years.

Senator KENNEDY. Right.

Senator WARNER. I miss it. But I am here today to follow this with great interest, and I thank you for the introduction.

Senator KENNEDY. Thank you.

Senator WARNER. We are delighted to have our friend here, Senator Sessions.

Senator SESSIONS. Thank you.

Senator KENNEDY. I welcome the chance to work with you on this subcommittee and enjoy the chance to work with Senator Sessions on this subcommittee, as well as Senator Collins, who is a fellow New Englander.

STATEMENT OF SENATOR JEFF SESSIONS

Senator SESSIONS. Senator Kennedy, thank you for your leadership. We are, indeed, sharing some basic insights from this side of the table about "How can we improve the Navy?" I think it can be boiled down to this. We are going to need to increase the number of ships that we are building. We simply cannot maintain the level we are at over any extended period without substantially reducing our Navy.

At the same time, hopefully today, we will have some questions answered. I believe we can expect to have some ideas that we could utilize more efficiently with the ships that we have.

We all know that it is critical that the United States be able to project its power around the world. We have not been able to do that at any time within recent years without the Navy's power helping us to do that, or really being the cornerstone of it.

I believe it is an investment we need to make. I will just note that the 2001 QDR states that the baseline force was assessed across several combinations of scenarios on the basis of a new defense strategy. The capabilities of this force were judged as presenting moderate operational risk, although certain combinations of warfighting and smaller-scale contingency scenarios present high risk.

The 2001 QDR, of course, which carries with it that moderate or high risk includes the following ships: 12 aircraft carriers, 12 amphibious ready groups, 55 attack submarines, and 108 surface combatants. I hope that the witnesses today can reveal the additional risk incurred by proposing a Navy ship force in this budget which is lower than the moderate to high risk included in the QDR.

[The prepared statement of Senator Sessions follows:]

PREPARED STATEMENT BY SENATOR JEFF SESSIONS

I thank our Chairman, Senator Kennedy, for scheduling today's hearing to explore Navy and Marine Corps ship requirements, research and development, procurement, and improving the operational days underway for the ships in service.

The September 2001 Quadrennial Defense Review (QDR) states that the baseline force "was assessed across several combinations of scenarios on the basis of the new

defense strategy and force sizing construct, and the capabilities of this force were judged as presenting moderate operational risk, although certain combinations of warfighting and smaller-scale contingency scenarios present high risk." The 2001 QDR force which carries with it that moderate to high risk includes the following ships:

12 Aircraft Carriers
12 Amphibious Ready Groups
55 Attack Submarines
108 Active Surface Combatants
8 Reserve Surface Combatants

However, the fiscal year 2003 budget request and accompanying Future Years Defense Program (FYDP) would not build sufficient ships to recapitalize the QDR force level both in the near- and long-terms. The Congressional Research Service (CRS) calculations indicate that the average number of ships required to be procured to maintain the QDR force of about 300 ships will rise to 11.2 per year starting in 2008 if the proposed number of ships in the FYDP are procured. That average would increase from the present benchmark of 8.9 ships per year. This vividly points out that instead of progressing toward recapitalizing the fleet, the proposed budget request has the opposite effect. I hope our witnesses today can reveal the additional risk incurred by proposing a Navy ship force which is lower than the moderate- to high-risk force included in the QDR.

Navy witnesses have testified before the full committee that because the average age of ships is about 19 years, ship recapitalization is not the highest Navy recapitalization priority. Aircraft recapitalization is the highest Navy recapitalization priority and recapitalization of both aircraft and ships is a lower priority than readiness. It should be considered that using average age to make investment decisions may not be prudent because problem areas may be masked. For instance, there are ships in the Navy being used past their projected service life while others are retired well before the end of their projected service life. The average age calculation does not include shortfalls such as the fact that the Navy has fewer ships than required by the QDR.

Given the budget request for new ship construction and a general agreement that the proposed funding is not adequate to recapitalize the fleet, we should look for ways to maximize future investments while ensuring we get the most out of investments already made. Senator Kennedy and I sent a letter to the Secretary of the Navy and the Chief of Naval Operations asking them to explore ways to increase the number of days that ships can operate. We suggested that, at a minimum, the Navy should explore the following four focus areas to determine if additional operational days could be provided to the regional Commanders in Chief:

- Assign additional ships and submarines to homeports closer to their areas of operation. This is sometimes referred to as forward homeporting.
- Assign a ship to remain in a forward area of operations and rotate crews. This is sometimes referred to as dual crewing, such as occurs with "blue" and "gold" crews on ballistic missile nuclear powered submarines (SSBN).
- Retain ships to the end of their full service life. This could support a Navy that is a capability and presence-based force rather than a threat and presence based force.
- Preposition additional ships in a forward operating areas.

Mr. Chairman, if there is no objection, I would like our letter of March 1, 2002 entered into the record of this hearing.

In addition to maximizing operational days for ships in the fleet, we should look for ways to maximize the impact of investments in this budget request. There are eight specific issues that we should evaluate as possibilities for maximizing the investment impacts.

First, decommissioning ships which still have combat capability 10 years prior to the end of their service life generates a requirement to build about eight more ships than are included in the CRS calculations for ship construction requirements. Therefore, we should consider the possibility of retaining these ships to the end of their service lives.

Second, although Congress put in place a law that authorizes the Navy to save taxpayer dollars by buying submarine components in economic order quantity, this request does not propose such savings measures. Therefore, we should explore possible problems with the enacted legislation and additional possible legislation to maximize the Navy's buying power.

Third, this request delays procurement of CVN(X) resulting in a 1 year slip and a higher cost of the ship. Therefore, given the recent reminder of how valuable these

ships are, and to save taxpayers dollars, we should explore a funding profile to save dollars and restore the 2013 delivery of the ship.

Fourth, it is questionable whether or not the destroyer industrial base, including second and third tier vendors, can be maintained with the proposed destroyer construction included in this request. Therefore, we should review the requirement to maintain the industrial base and, if required, consider action to ensure its viability with a thorough understanding of implications for the cost of DDG–51 ships and future destroyers.

Fifth, this FYDP misses an opportunity to take advantage of a construction option for a required auxiliary ship. This missed opportunity could lead to higher costs and/or stretched-out delivery dates. Therefore, we should explore possible fiscal year 2003 action that would ensure the Navy exercises the option if taxpayer dollars would be saved.

Sixth, the proposal for a construction start for a new class of command and control ships does not appear to take advantage of established ship production lines of similar ships. Therefore, the subcommittee should determine what funding is required in fiscal year 2003 to ensure the Navy has the information required to adjust the construction to a schedule most advantageous to the taxpayers while providing the ship at the required time.

Seventh, it is not clear whether or not taxpayers are paying twice for technology efforts for future ships that are funded out of separate ship programs. Therefore, we should explore ways to remove restrictions that may exist and/or provide the means to ensure information on like efforts is shared between programs.

Eighth, the delay in DD 21/DD(X) further delays providing required fire support for the Marine Corps. Therefore, the subcommittee should explore alternatives for rapidly fielding the 155 millimeter shipboard gun.

Transformation is a continuous effort which is inherent in the research and development for future platforms and equipment, how equipment is used, the approach to training, and the mind-set of personnel. Although there are specific programs that can be described as transformational, this type of description is only applicable for a given point in time. Therefore, while being aware of transformation aspects of programs, our overarching focus should be on how the programs will contribute to carrying out the defense policy goals of:

- Assuring allies and friends;
- Dissuading future military competition;
- Deterring threats and coercion against U.S. interests; and
- If deterrence fails, a decisive defeat.

The Navy and Marine Corps team are vital to carrying out all four of these policy goals and ships are the means by which the Navy and Marine Corps meet the challenge described in the QDR of "projecting and sustaining U.S. forces in distant anti-access environments."

The performance of our men and women in the war on terrorism across the globe and their dedication to do what it takes to complete their mission is inspiring and we owe them, each day, our continuing gratitude and full support.

I welcome our witnesses today and look forward to their testimony.

Thank you, Mr. Chairman, for your leadership.

To follow my statement, I ask that Senator Collins' statement be inserted into the record.

[The prepared statement of Senator Collins follows:]

PREPARED STATEMENT BY SENATOR SUSAN COLLINS

Thank you Mr. Chairman. Seapower is among the most essential components of our national security posture and an important part of ensuring the U.S. meets its global commitments. Currently, our naval forces are providing immediate access and forward deployed combat power 24/7 in support of Operation Enduring Freedom. Further, our naval forces are the United States' only sovereign global warfighting capability. As Admiral Clark so eloquently stated, "Our naval forces do not need a permission slip to operate worldwide."

These capabilities, and the fact that two-thirds of the world's surface is covered by ocean, make a compelling case for robust naval forces. Forward presence, however, requires that the ships are available and ready to deter, fight, and win.

The facts are clear—the U.S. Navy has shrunk from a fleet of 594 ships in 1987, to approximately 318 ships today. During this same period, ship deployments have increased more than 300 percent. Navy officials have repeatedly warned that the fleet is stretched perilously thin and needs to be increased to at least 360 ships to

meet its present mission requirements. The CNO has candidly testified that there is a strong and justifiable cause to increase our naval force structure to around 375 ships.

These factors coupled with the global war on terrorism and defending America's national security, demand that we recapitalize our Navy today. President Bush and his administration have identified this global war on terrorism and homeland security as our highest priorities. As we in Congress work with the Bush administration to defend freedom, I will continue to encourage the replenishment of our naval fleet as the cornerstone of this global defense.

The fiscal year 2003 budget provides $48 billion in overall defense increases, yet the Navy's budget provides for the procurement of fewer ships than last year. The SCN procurement numbers speak for themselves—$11.96 billion in fiscal year 2001, $9.5 billion in fiscal year 2002, and $8.19 billion in fiscal year 2003. The CNO's written statement before the full committee clearly states the problem, "Current aircraft and ship procurement rates will, if continued, result in a Navy numerically smaller than today's, and significantly smaller than that needed to sustain the war. Such a fleet would be an invitation to greater operational risk and international instability."

The Congressional Research Service (CRS) warns us that at the present rate of procurement, we are facing a 47 ship-deficit and we will not be able to sustain the QDR critical force levels. The fact is that we must procure 8.9 Navy ships per year to maintain, not grow, a 310 ship-Navy. Uneconomic procurement rates, including only two DDG–51s in the fiscal year 2003 budget, increase costs to the Navy and jeopardize our industrial base and its skilled workforce. If we are not committed to reversing the decline in shipbuilding rates this year, in a year of a $48 billion increase, then when?

We cannot continue to defer this investment year after year. We are just slipping deeper and deeper into a procurement hole, and that is why I have proposed to look at all of the resources available in the Department of the Defense's budget, including the Defense Emergency Response Fund (DERF), or contingency fund, to begin to address this egregious shortfall.

As I have stated before, numbers do matter. The number of new construction ships under contract 10 years ago was 110, while only 36 ships are under construction today—this is a 66 percent decline in ship construction. Furthermore, while the number of ships authorized to be built 10 years ago was 15, today the budget request before us authorizes a mere 5 ships, a continued decline over the last 4 years.

In recent years, we have been consistently under funding the naval shipbuilding and research and development accounts—the future force is at risk. Therefore, I am convinced there will be a need for even greater reliance on our naval forces as joint operations emerge to provide sovereignty to our fighting forces. Proof is in our current operations in Afghanistan. For these reasons and many others, I share the view of many of my colleagues that we must recapitalize our fleet to ensure that America retains her maritime power in the 21st century.

I look forward to working with each of you in the weeks and months ahead to bring the procurement rate to an adequate number that will meet the needs of our Nation's security and provide more stability for our critical but increasingly fragile naval shipbuilding industrial base. I welcome any thoughts or comments you would care to offer the subcommittee on these complex issues. Thank you, Mr. Chairman.

Senator KENNEDY. Thank you.

Admiral, we will be glad to hear from you.

STATEMENT OF REAR ADM. MILES B. WACHENDORF, USN, DIRECTOR, STRATEGY AND POLICY DIVISION, OFFICE OF THE CHIEF OF NAVAL OPERATIONS

Admiral WACHENDORF. Thank you, Chairman Kennedy, Senator Sessions, Senator Collins, Senator Warner, and members of your staff. It is a pleasure to be here.

My name is Admiral Ben Wachendorf. I am the Director of Strategy and Policy on the CNO staff. I'm here to discuss with you some alternatives, some of which are already being implemented, to increase the presence of Navy combatant ships in forward areas, and to discuss other issues that are being studied.

I have submitted a written statement for your review and, subject to your approval, I would like it to be a part of the record. It includes some answers to questions that were asked in my invitation to testimony.

It also includes some information concerning some manning initiatives we are doing. Those were included because some of the ways to get more ships into forward areas longer is to increase the manning. We want to do that as a zero sum gain without asking for end strength increases. So we are trying to be smarter about the way we use our sailors.

I would also like to just thank you and the committee personally for your support of the men and women of the United States Navy. The support Congress has given our most valuable asset, our people, is heard loud and clear on the deck plates of the United States Navy. I am very grateful for it.

Subject to any other questions you have, I will be happy to answer any questions you have for me.

Senator KENNEDY. Thank you very much.

[The prepared statement of Rear Admiral Wachendorf follows:]

PREPARED STATEMENT BY REAR ADM. MILES B. WACHENDORF, USN

Chairman Kennedy, Senator Sessions, and distinguished members of this subcommittee, thank you for the opportunity to testify today. It is a privilege to report to you on the status of several initiatives the Navy is either undertaking or exploring to increase our forward naval presence, and we appreciate your continuing support.

Today, over 32 percent of our naval force is deployed in support of Operation Enduring Freedom (OEF) as well as normal deployments to maintain our global presence. Our sailors and marines continue to reflect the best of what America has to offer, and we are extremely proud of their efforts. Today more than ever we need to explore potential alternatives for enhancing our ability to fulfill requirements placed on our naval service. Earlier this month the Vice Chief of Naval Operations, Adm. William J. Fallon, discussed several initiatives the Navy is exploring to alleviate the strain on our current OPTEMPO. OPTEMPO has an important impact on current readiness. U.S.S. *John C. Stennis* deployed weeks early in order to support maritime operations in the Arabian Sea and U.S.S. *Theodore Roosevelt,* recently spent 160 consecutive days at sea without a port visit. This increased OPTEMPO is a concern because over time it could yield negative effects on retention, as well as increased wear and tear on equipment. While our commitment to limiting deployments to 6 months in peacetime remains firm, we recognize that we are in a war of indeterminate duration. Therefore, we currently are exploring plans to ameliorate the effects of this increased OPTEMPO by a variety of means. My goal today is to provide background information on several deployment posture and manning initiatives. While some are in the early stage of development and others have been studied at length, we are encouraged that several initiatives have the potential to improve not only OPTEMPO, but also our ability to provide additional forward presence with the current force:

Issues addressed:

1. Assign additional ships and submarines to homeports closer to their areas of operations. This is sometime referred to as forward homeporting.

Not a new alternative, but one that must be considered is the homeporting of naval forces overseas. The largest example of this is our forward deployed naval force (FDNF) homeported in Japan. The *Kitty Hawk* battle group, with her embarked airwing and support ships along with the *Essex* amphibious ready group (ARG) are designed to provide a nearly continuous presence in the Western Pacific capable of executing missions across the entire spectrum of conflict from peacetime presence to major war. Over the past few years, there have been numerous studies completed that have looked at other potential ports within WESTPAC, the Indian Ocean and Arabian Gulf to homeport naval forces. The results of these studies are all similar; there are numerous ports throughout the region that have the capability and infrastructure to conduct port calls, but the required infrastructure to support the permanent homeporting is not available and would require substantial invest-

ment by the U.S. and the host nation. The studies also reflect zero potential to increase the size of the force that is forward deployed to Japan. Additionally, required training facilities and formal schools are not available overseas to meet all the requirements. The workup training opportunities such as fleet exercises with an aircraft carrier and battle group would be greatly diminished by homeporting away from the majority of the fleet. Exercises are the backbone for preparing ships and crews to conduct required operational missions. Finally, the loss of stateside quality of life would be significant for those families, both civilian and military who would be required to relocate. This could have an adverse impact on retention.

However, the U.S. territory of Guam offers a near-term potential to increase our forward presence in the Western Pacific. Beginning in September 2002, the first of three refueled 688-class submarines will be homeported in Guam. This will provide approximately 90 additional in theater mission ship days per year over what could be provided by three submarines homeported in the Eastern Pacific. Ship and maintenance support is in place with the submarine tender currently homeported in Guam. Pier facilities and weapons support facilities are adequate. The housing and family support facilities on Guam will quickly support the first homeported SSN, and will require minor upgrading in addition to the current renovation plans to support all three newly assigned submarines.

Personnel/training requirements will result in flying portions of each crew to Pearl Harbor or to Yokosuka for schools and team trainers at a cost of about $300,000 annually per submarine. Crew maximum tour length is set at 3 years and is within existing overseas assignment guidelines. Submarines will need to shoot exercise torpedoes about every 15 months to maintain proficiency. This may be accomplished by transit back to Pacific Missile Range Facility, Hawaii (cost is about 15 days of operations and engagement) and by scheduled exercises in Seventh Fleet. Additional transits to Hawaii maybe required for nuclear maintenance or dry-docking. Currently, the U.S.S. *Frank Cable* transits to Japan in support of Seventh Fleet ships three times per year for a period of about 1 month each time. With *Frank Cable's* current manning she cannot continue this level of support outside the submarine force and take on the support of homeported submarines in Guam. In order for her to support her current Seventh Fleet level of effort, *Frank Cable's* repair and weapons department manning will be increased to meet the additional requirements resulting from the additional three SSNs. Current naval forces stationed in Guam include:

- Three SSNs to be completed by calendar year 2004.
- One tender (U.S.S. *Frank Cable*).
- Four Military Sealift Command (MSC) ships.
- Helicopter Combat Support Squadron FIVE (HC–5).
- Explosive Ordnance Detachment (EOD) One.
- Naval Special Warfare (NSW) Group One.
- Five pre-positioning ships off Saipan

2. Assign a ship to remain in a forward area of operations and rotate crews. Although not typically rotated in forward areas, the dual crewing or "blue/gold" crews on SSBN are an example.

Crew rotation (sometimes referred to as "Sea Swap"): Extending ship deployment length while swapping crews in mid-deployment appears to offer significant potential for improving on-station time without increasing either OPTEMPO, PERSTEMPO, or to a great extent, ship wear and tear. Rotational crewing/sea swap is a variation on the multi-crewing themes referred to as "Horizon" suggested by the CNO Strategic Studies Group, Center for Naval Analyses (CNA), and others. The primary difference is that where most multi-crewing options involve more crews than ships; for example: 3 for 2 (CNA), 5 for 4 (Horizon), 2 for 1 (SSBN) ("Blue/Gold"), or several for 2 (MCM–1), the basic unit of crew rotation (1 for 1) is two or more similarly configured ships with an equal number of similarly trained crews.

The crew rotation scheme would extend individual ship deployments from 6 months to a nominal 11.5 months or longer while holding crew deployments at 6 months. At the 5.5-month point in the cruise, a relief crew from a sister ship is flown into theater to man the deployed ship. After turnover, the relieved crew is flown back to CONUS where it mans the non-deployed unit of the operational pair. The deployed unit remains deployed for a total of 11.5 months or longer before being relieved on station in traditional fashion. Essentially, sea-swapping crews reduces ship transit—using instead airlift to replace the crew. The 6-month PERSTEMPO limit is not exceeded for any crew.

In the case of deployments from the West Coast to the Arabian Gulf, eliminating every other transit provides an additional 2 to 2.5 months of on-station time for each pair of ships without necessarily changing turnaround ratio or OPTEMPO for

either crew or ship. Three pairs of ships in sea swap can create up to 20 additional on station ship months over 4 years when compared to the current deployment methods. The advantages of this concept are:

- Significantly improved efficiency in meeting CINC requirements for forward deployed units;
- No crew is without a ship and no ship is without a crew. This should improve training opportunities and contingency surge capability;
- Crews stay with the same ship for approximately 2 years and with same operational pair throughout their sea tour, providing an improved sense of ownership compared with other rotational crewing plans;
- Ships return to CONUS often enough to reduce or eliminate the need to do major maintenance overseas;
- The capability to do major maintenance and upgrades (without disrupting deployment schedules) improves because ships enjoy longer periods in CONUS between cruises;
- Turnaround ratio—Ship 2.91:1/Crew 2.75:1; Deployment time—Ship 11.5 months/Crew 6 months; and
- Additional ship months generate opportunities for multi-ship action groups to meet emerging challenges or additional ship availability for employment opportunities to support Homeland Security/Defense.

The Navy is currently developing a pilot program to employ the "crew swap" concept in an effort to determine the true costs and potential savings, while developing lessons learned to provide a firm analytical basis for recommendations to either expand the concept or look for other alternatives. In maintaining the focus on the fleet and the impacts that a shift in deployment methods may have, Commander, Surface Forces Pacific has been designated the lead for development and implementation of the pilot program. The current plan will employ *Spruance*-class destroyers beginning this summer with the deployment of the *Lincoln* CVBG and then expand to *Arleigh Burke*-class guided missile destroyers later this fall with the deployment of the *Constellation* CVBG. Both plans have the potential to gain an additional 100 days on-station for a net gain of 200 days. This will reduce total transits to four for six ships which cover four battle group deployment cycles. It is from these two experiments that we will be able to determine recommendations.

3. Retain ships to the end of their full service life by investing in the support funding needed to keep them serviceable. For example, we might decide that keeping DD–963s in active service might make sense for the capabilities they provide (such as presence and ASW capability), rather than retiring them because they are not adequate to meet certain threats (because they do not have the very latest anti-air warfare systems).

Force Structure

The Navy must balance between transforming and building the future Navy to meet emergent warfighting requirements and operating the current force to meet existing missions, while remaining within the President's budget. While new ship procurement decisions dominate force structure recapitalization, the retention or decommissioning of ships has the greatest near-term impact on force structure size and composition. The key element in decisions to extend or contract the service life of a ship class is affordability versus capability.

Service Life Considerations

The service life of our warships has a significant impact on force structure. Extending service life by delaying decommissionings can maintain or increase force structure and, correspondingly, accelerating decommissioning can reduce force structure. The decision to extend or accelerate decommissioning of a class of ships is based on a cost/benefit analysis that focuses on the affordability of the platform and what warfighting capabilities it brings to the joint commander's tool box. In some cases, such as *Ticonderoga* (CG–47)-class cruisers and *Perry* (FFG–7)-class frigates, it is considered prudent to invest in conversion and modernization of ships to extend their service life. In other cases, such as *Spruance* (DD–963)-class destroyers, it makes more sense to decommission the ships.

Historical Service Life vs. Estimated Service Life

Sophisticated combat systems must keep pace with advancing threat technology. As the combat systems and the hull, mechanical and electrical (HM&E) systems of a platform age both must be maintained and upgraded, but the combat systems upgrades tend to be more extensive and expensive. Additionally, as ships age, the cost of operating and maintaining the ships can increase depending on the overall condition of the vessel. For example, if a ship has had a number of maintenance actions

deferred over the course of its operating life, and it has experienced high OPTEMPO, the cumulative effects on the ship can lead to higher operating and maintenance costs. This must be considered in investment decisions. In making service life decisions, warfighting capability gained from an upgrade is compared to the cost of the upgrade and the operations and maintenance cost of the ship. Unless modernized, a surface combatant class' historical service life (HSL) is shorter than the estimated service life (ESL) established via instruction. For destroyers, HSL is 20 years compared to an ESL of 35 years. In the case of frigates, HSL is 20 to 22 years compared to an ESL of 30 years.

Cruiser Conversion

The Navy has made the commitment, through the conversion program for *Ticonderoga* (CG–47)-class cruisers. The program will upgrade the Aegis combat systems and install warfighting improvements including area air defense commander (AADC) capability, and upgrades to the Aegis baseline to accept sea based ballistic missile defense capability (pending Missile Defense Agency (MDA) approval and funding of development), land attack, and force protection. Additionally, service life extension work including smart ship upgrades all electric alteration, weight and moment adjustments, and distributive systems improvements. Modernizing these ships will make them more capable to project theater-wide offense and defense while providing an additional 20 years of service life beyond the HSL.

Frigate HM&E and Self-Defense Upgrades

In the fiscal year 2003 budget submission, *Perry*-class frigates will receive HM&E upgrades to reduce their operating costs and extend their service life. Additionally, the combat systems will be upgraded with selected ship self-defense technology. These ships with their relatively small crew size and low operating costs provide affordable warfighting capability.

Destroyer Decommissionings

DD–963 class is expensive to maintain because of its large crew size, age, and provides only marginal warfighting capability due to the ship's older and more focused mission combat system. These ships had an earlier modernization with the introduction of the vertical launch system (VLS), which extended the combat system relevant life beyond the historical 20 years. However, while the ships still provide some warfighting capability with two 5″/54 guns and an anti-submarine warfare (ASW) suite, the higher manning requirements and operational costs do not justify additional funds for further modification or extended service life. New DDG–51 class ships being introduced to the fleet provide substantially more capability and an ample number of VLS tubes to support current Tomahawk inventory. It is not cost effective to keep the DD–963 class in the inventory. The currently structured decommissioning schedule will save the Navy about $1.25 billion over the Future Years Defense Program (FYDP) that can be applied to transformational efforts such as electric drive, advanced networks and stealth technology which will bring new warfighting capabilities to the fleet.

However, we are funding the LPD–4 extended sustainment program. This program was developed to improve the dependability of HM&E systems and living conditions for the sailors and embarked marines. Additionally, it is expected that LHAs will be required to serve a median 42 years, significantly beyond their ESL of 35 years, before being replaced by the LHA(R) ships currently being studied.

The requirement for amphibious ships is driven by two factors, amphibious ready group (ARG) deployment cycle and Marine Corps lift requirements. Today's 12 ARGs are the minimum required to meet presence requirements and each ARG consists of an LHA/LHD, LPD, and LSD. Overall lift is currently below the 2.5 Marine expeditionary brigade (MEB) lift programmatic goal and full requirement of 3.0 MEB lift. LPD–4s (*Austin*-class) will be required to serve an average of 41.5 years, well beyond their original ESL of 30 years, in order to meet amphibious requirements until the LPD–17 class ships deliver.

4. Preposition additional ships in forward operating areas that would be maintained by very small crews during normal circumstances. This concept would be analogous to the manner in which certain Ready Reserve Force (RRF) ships are kept ready to begin operations in just a few days.

The current Ready Reserve Force is maintained in a 10–20 day activation status, with no caretakers on board. The ships undergo a sea worthiness inspection by USCG every 2 years. The ships in a Reduced Operating State (ROS) have 4–5 day windows, as well as 30–45–90 windows for underway; the 4–5 day ships are manned with civilian mariners to maintain the ships propulsion system. The role of these ships is to support U.S. Transportation Command (TRANSCOM) and sealift for cur-

rent OPLANS. The ROS and RRF ships do not have complex C[4]ISR systems or weapon systems that are maintained. The time required to develop minimum standards of crew proficiency for combat operations will take longer than the transit time saved.

5. Other Studies and Initiatives:

Manning Initiatives

The ability to optimize the manning of our ships also will provide efficiencies. Within OPNAV and the fleet we are in the process of exploring several alternatives that will enhance our ability to man our ships and squadrons at optimum levels during the inter-deployment training cycle (IDTC) and scheduled deployment. These efforts involve or will involve the units within two CVBGs/ARGs and six other ships affecting additional CVBGs. The number of sailors directly involved or temporarily moved by these initiatives will exceed 2000 as manning levels for each are adjusted to the requirements for their respective initiative. These initiatives will span timelines from 15 months to 36 months as the concepts are formulated, execution strategies developed, plans executed, and final data analysis is complete. The fleets are aggressively exploring these manning alternatives to address such issues as requirements determination, retention and personnel development, and increased operational flexibility. These efforts highlight the transformational research that the fleets are doing to help identify the true requirement.

Fleet Manning Experiment (FME) led by Commander, Atlantic Fleet (CLF) and Commander, Pacific Fleet (CPF)

The CLF/CPF FME is a bottom-up fleet review of manpower requirements, which identifies the true manning requirement in today's infrastructure and warfighting environments. The FME is not an exercise in shipboard manning reduction. The period of this effort is from July 2001 to July 2003. FME test units are contained within the U.S.S. *George Washington* CVBG and *Nassau* ARG. These units (and the CVBG/ARG as a whole) will be evaluated during their IDTC, deployment and post deployment maintenance periods for the effects of these changes. Manning adjustment began in January 2002. In order to achieve the FME levels for rating/Navy enlisted classification (NEC) and pay grade on the test units, about 570 sailors are being moved within the CVBG, where possible. As an example of the cooperation and success of these efforts, general detailed (GENDET) manning for the three players requiring the majority of additional non-designated personnel will be met in May of this year. This has been an exceptional effort to identify the true requirements by all involved and will have significant impact on the way we determine manpower requirements for our sea units in the future.

Optimal Manning Project (OMP) led by Commander, Naval Surface Force Pacific (CNSP)

The CNSP OMP is a bottom-up review of the billets authorized (BA) on a DDG and smart CG in an effort to develop, from the fleet perspective, the ship class manning requirements for the future including minimal manning concepts. Reductions will be based upon policy and procedural changes (internal and external), technology insertions and shore infrastructure changes. Although most of its assumptions are the same as the FME, it explores a number of potential shore infrastructure changes that can be used to reduce overall at sea manning requirements. The most significant changes involve the current day functions and workloads associated with maintenance and personnel administration. The period of this effort is roughly the same as the FME. The OMP test units will also be evaluated during their IDTC, deployment and post deployment maintenance periods for the effects of these changes as in the FME. OMP manning reduction resulted in a decrease of 95 billets. Manning reductions to the OMP levels began in November 2001.

Mobile Bay (CG–53) and *Milius* (DDG–69) are on track in the IDTC and have operated successfully at sea. An ashore maintenance detachment, which was established in October 2001 using consolidated OMP-BA excess, is supporting additional ship maintenance periods other than their parent commands. An administrative detachment using consolidated OMP–BA excess is conducting pay and personnel issues from ashore.

Accelerated Sailor Achievement Program Pilot (ASAP) led by Commander, Atlantic Fleet and Chief of Naval Personnel (CNP)

ASAP is directed at improving GENDET attrition and retention by: (1) by starting the sailor mentorship process early in the recruiting phase and continuing it through the sailors first sea tour and; (2) providing an absolute advanced school opportunity following a 24 month initial sea tour. Early association of the new sailors to a final parent command will begin as they are recruited for a specific CVBG/ARG,

assigned earlier in the process to units within that CVBG/ARG and personally and professionally developed during their at-sea time for successful application to an advanced training school of their choice. We believe that this early incorporation of the young sailor into his first at-sea team with a very tangible reward at its completion will provide significant gain in this area as well as exercise our covenant leadership responsibilities to them. The time period for this effort will extend for about 36 months. The ASAP test units are tentatively within the *Truman* CVBG.

a. Initial manning analysis indicates that 300–350 young sailors will participate in this pilot.

b. This pilot holds great promise in getting at the heart of GENDET losses: early mentoring, command concern for the individual's well being and personal and professional development. It addresses near-term and long-term readiness by investing in our people at a point where career decisions are made. Although too early to tell whether this pilot will be a success, from a leadership perspective, this seems like a winner. In the final assessment, our determination of return on investment (ROI) should not be limited to a straightforward cost analysis.

Long Deployment Initiative

This concept involves deploying a unit for 9 months while rotating a contingent (about a quarter of the crew) back stateside every 2¼ months so that we can maintain our forward commitments while not bearing the entire burden on the backs of our sailors. This concept requires an increase in assigned personnel of 25 percent. The time period for this effort will extend for about 15 months. This concept has the potential to define the way ahead in sailor employment. By manning sea-going units to 125 percent of current levels, we keep sailors at sea while providing the ship with the excess capacity to allow their sailors the time to pursue their personal and professional development. At the current level of 160,000 sailors at sea in combat units, 40,000 billets would need to be realigned from other activities. We could increase sea tours for our sailors without adversely affecting their quality of life (QOL) or careers. Longer sea tours would increase unit readiness through crew stability, increased experience level, surge capacity, and increase skill sets onboard through shore side training opportunities, etc. QOL for these sailors would improve with additional manpower to address shipboard duties, additional opportunity to fully participate in the transformation envisioned by the Navy's Task Force Excel, training opportunities to improve shipboard skills with temporary additional duty (TAD) assignments to base security units, ship intermediate maintenance activities (SIMA), personnel support detachments (PSD), clinics, etc.

I hope the background information provided today on several deployment posture and manning initiatives was helpful. Some initiatives are in the early stages of development and others have been studied at length. I remain optimistic that the initiatives presented will improve OPTEMPO and our ability to provide additional forward presence with the current force.

Senator KENNEDY. Admiral, the Navy has said it has to have these 7.6 aircraft carriers in the active fleet in order to support one carrier on-station full-time in the Northern Arabian Sea. This reflects assumptions of keeping the CNO-mandated operational tempo goals for down times, among others.

The Navy also indicates that having the carrier homeported in Japan allows the Navy to have only 1.7 carriers in the active fleet providing a continuous presence of one carrier in the Western Pacific.

So in your discussion of forward homeporting options, you discussed a number of vessels such as submarines and other support ships in Guam. However, you made no mention of relooking at options to homeporting carrier battle groups in locations other than the current group in Japan. I would say there are numerous ports throughout the region that have that capability and infrastructure. You have ports of call, but required infrastructure to support current and homeports, if unavailable, would require substantial investments by the U.S. and the host nation.

Could you give us some idea what the estimates are and what the costs would be required to establish the appropriate infrastructure?

Admiral WACHENDORF. Sir, I'll take that to give you the exact numbers for the record, if I may.

[The information referred to follows:]

The Navy has conducted some preliminary studies to determine the infrastructure support required to homeport a carrier battle group (CVBG) in locations other than Japan. These studies estimate that the range of construction costs are from $3 to $6 billion, requiring between 7 and 10 years to complete the necessary environmental studies and subsequent construction. Upgrades to existing civil infrastructure such as roads, power, water, and waste disposal to support the approximately 25,000 military sailors, civilian personnel, and dependents could add billions more. These estimates did not account for the cost of land acquisition, so the availability of land was a constraining factor in some locations.

The annual recurring costs to operate and support the CVBG would also be significant. The Navy has not entered into any formal discussions with potential host nations so the political feasibility of alternate sites cannot be determined yet.

In general, the infrastructure required to support a carrier is much larger than for the submarines. In the case of Guam, we do presently have sufficient infrastructure with the submarine tender there that is capable of also supporting surface combatants, to accommodate three nuclear attack submarines: the first of which will arrive in September of this year, the second in October, the third to be decided, but soon after.

I have discussed this with Admiral Fargo, Commander of the Pacific Fleet, as recently as last week. He is of the opinion that no further infrastructure would be needed to accommodate those and perhaps a few more submarines and a squadron of surface combatants, perhaps with missile defense capabilities, as those issues come online.

For the aircraft carrier, however, there is a lot more infrastructure and dredging that would be required. We certainly could do that, but it is our intention right now to substitute with modern ships, whether they be aircraft carriers or amphibious or cruiser/destroyer force ships, in Japan with the latest technology, but to maintain in Japan the same number of ships we have there.

A pure, very extensive support facility was built in Singapore, and we are now using that as a good place for ships to resupply. For some of the manning concepts to increase presence, we are considering crew swapping alternatives. It is our opinion that we would not need to locate a lot of intensive industrial support or maintenance facilities in places like Singapore or other locations, but we could change out the crews there if the ships could stay longer. That would have the increased presence.

Senator KENNEDY. Coming back to the aircraft carriers, you gave me a good survey answer about the issue. But let us just take the aircraft carriers now. In terms of looking at other kinds of ports, this is not a new issue.

Admiral WACHENDORF. No, sir.

Senator KENNEDY. Looking at decisions back in 1993, we had the Defense Department doing studies at that time. They were non-responsive to these kinds of things. We have additional pressures now, particularly with this budget and with this administration.

So I am interested in what the costs are in terms of the forward part. What are we looking at? There are a number of the old op-

tions. We looked at Rota, which was around for a number of years. Crete was there, along with Perth, Australia. These are all harbors or ports that we had talked about at other times.

I am just wondering if you are looking at this, the options of forward porting and, if so, what are the cost considerations? If not, why not? How is this balanced against the development of the battle carrier group? It is around $20 billion.

What are the kinds of thinking that is going on? How would you evaluate it? When was the last time you did evaluate it? What are the costs out there? Is it the instability in those regions? Is it a greater kind of danger, or is it just cost? What are the factors when we have the extraordinary figures in Japan of 1.7 carriers versus 7.6 we are keeping in the Northern Arabian Sea.

Admiral WACHENDORF. Yes, sir. Your numbers are exactly correct, sir. I would point out that we have maintained a 2.0 carrier presence, at times 3.0 including the carrier from Japan, in the war on terrorism off of Afghanistan. We have plans to surge more carriers. To answer your question more specifically, there are some regional stability concerns.

Japan has no more room for additional carriers in their infrastructure.

Senator KENNEDY. I understand that.

Admiral WACHENDORF. So we would have to look at places like Guam. It was the fleet commander's assessment that they are not ready to accommodate something the size of a carrier itself, but they could accommodate the surface combatant squadron and the squadron of submarines.

The next leading contender would probably be Australia, because we could leverage some of their naval bases, which have existing facilities. We would still have to expand on them to accommodate our nuclear carriers, which Australia does not have. But they have expressed a willingness to do so.

Senator KENNEDY. Well, I know that Perth was at least one of the options.

Admiral WACHENDORF. Yes, sir.

Senator KENNEDY. But what I am looking for or asking is whether we have done a review or whether this is an ongoing and timely review.

Admiral WACHENDORF. Yes, sir. It is the——

Senator KENNEDY. It would seem to me that you would want both the review in terms of the costs in this versus what are going to be the costs outside of it.

I would think you are also looking at whether you need the length of time in these particular regions. Do you know what it costs in terms of keeping the aircraft battle group in the Indian Ocean for 12 months? Why 12? Should it be nine?

What are the capabilities in those regions? Do you need all the battle group, or some or less? Do you need all the personnel on those aircraft carriers with the particular challenges they are facing, or somewhat less?

What I am interested in, sir, is what kind of thinking is going on in the Navy as we are looking at these budgets so that it is not just a bottom line, which we are already conscious of, in terms of

what is happening in shipbuilding, but also these other kinds of alternatives as well.

I am wondering whether the Navy is looking at these kinds of factors and how they are evaluating them to see if they are even sure there are good reasons.

Some may be good reasons to do it, other reasons why they should not be done; what I am most of all looking at is to see whether that kind of process has been moving——

Admiral WACHENDORF. Yes, sir.

Senator KENNEDY.—ahead. I am somewhat troubled that I am not sure that it has been.

Admiral WACHENDORF. Two comments on that, Senator.

Senator KENNEDY. Yes.

Admiral WACHENDORF. The Center for Naval Analyses did some exact studies with those costs, and I will make sure they are available to you for homeporting options and the costs that would be incurred for different locations and the infrastructure required. I do not have that information in front of me.

[The information referred to follows:]

The following costs are provided for homeporting a four ship surface action group in Guam. These cost are the very lowest estimate. Due to Guam being a territory and infrastructure is already established it is the least expensive of the western pacific ports. Costing data for other areas in the Western Pacific are not currently available and are assumed to be much greater than the below Guam costs.

[In millions of dollars]

Family Housing	109 (100 percent renovation)
Bachelor Quarters	90
Ship Repair Facilities	0 (Ship repairs in Japan/HI/CONUS)
Wharf Upgrade	10
Utilities	4
Dredging	20
Supply	16
Ordnance	18
Morale Welfare and Recreation	5
Schools	17
Total	374 to 375

The following is a breakdown of cost areas.

- Family Housing (FH) (625 Units)
  - Renovation cost = $175,000 per unit × 625 = $109 million (includes infrastructure upgrades)
- Bachelor Quarters (BQ) (625 PN = 6–100 Personnel BQs) $144,000 per space × 625 PN = $90 million
- Ship Repair Facility (SRF) (Renovation required = Assume 50 percent of Plant Replacement Value (PRV) of existing building. No new construction required)
  - –50 percent of PRV $289 million = $145 million (does not include drydock; wharf & utilities upgrades addressed separately)
- Wharf Upgrades (Romeo, Sierra, Tango)
  - From Regional Shore Infrastructure Plan (RSIP) Waterfront Study, P–433 Bilge Oil Water Treatment System, Steam, fiber optics, (Romeo/Sierra): $7.1 million
  - Underwater Inspection Report (1998) identified $1.2 million for structural repairs; factor for new finds, deterioration, escalation (100 percent): $2.4 million
- Utilities
  - Electrical—Sierra & Romeo piers renovated in 1999. Tango pier damaged by earthquake and has no electrical. Electrical power, lighting, communica-

tions as follows: Romeo $0.2 million, Sierra $0.6 million, Tango $1.7 million. Total = $2.5 million
- Water/sewer: $1.0 million

- Supply
  - Cold storage—Increase 1700 sm: $7.7 million
  - Warehouse—Increase 2700 sm: $7.8 million
  - Fuels—Assume ok
- Ordnance
  - –3 new missile magazines @ $6 million: $18 million
- Morale Welfare and Recreation
  - Increase 20 percent (club, Child Development Center (CDC), gym, theater, bowling alley)
  - Assume 1 new CDC for 94 children = $2 million
  - Assume 20 percent expansion of gym = $3 million
- Schools
  - Increase 20 percent of MCON for High School (HS) and Elementary/Middle School (ES/MS),
  - HS: Current MCON is $35 million × 20 percent = $7 million
  - ES/MS: Current MCON is $50 million × 20 percent = $10 million
  - Total = $17 million

Another piece, sir, you mentioned it in your comment about longer deployments, one of the concepts we are looking at looks very attractive in theory. In practice, there are some challenges to overcome.

If we were to take the traditional deployment length, which your numbers of 7.6 assume for 6 months, it takes about a month for a West Coast ship, surface, submarine or aircraft carrier, to get to the Strait of Hormuz if that is the area of interest, and it certainly is one of them.

Then it takes a month to get it back. So that leaves 4 months of operating time in a 6-month deployment, because 2 months are spent in transit. If we were to increase the length of that deployment to 9 months and spend the same transit time over and the same transit time back, the on-station time would be increased from 4 to 7 months. That is a 75 percent increase in on-station time.

One of the concepts that I discussed in my statement is to increase the manning of the ship by 25 percent and every quarter of a 9-month cycle, about every 10 weeks, rotate a quarter of the crew through, so that the concerns that you mention in your opening statement could be addressed with respect to family separation and others.

That would allow a 75 percent increase in on-station time for a 25 percent manpower increase. That would make that very attractive.

There are some problems here, because of the training that has to be done—the specialized equipment that these sailors and officers have to operate—but that experiment is going to be initiated this fall, sir.

Senator KENNEDY. My time is up, but I will be coming back to the Horizon Program, the——

Admiral WACHENDORF. Sir, that came out of the Horizon study, which was conducted by the War College, sir.

Senator KENNEDY. OK.

Admiral WACHENDORF. The Horizon concept is a little different. There it involves an extra crew for a given number of ships. We

are looking at implementing that in the mine countermeasures force, because the crew sizes for those ships are smaller, sir, and we will get better data as we rotate those around.

Senator KENNEDY. I am going to come back to this later on.

If you could then, let us know what you are thinking and what you see as the advantages and disadvantages of these. If you have Blue/Gold or Horizon, whatever suggestions you do have. I understand there are a number of other kinds of options, which are also being looked at. We would like to know what your thinking is.

Is it cost-related? Are we going to balance off these costs versus the OPTEMPO in terms of the personnel? At the grassroots, we want to be able to make some judgments on these as well.

Maybe it would be best if either Senator Sessions and I were to try and frame this in the form of a letter so you have a more precise inquiry and we could get as good information as we can get.

But the point I just want to mention is that I think it is important for us to know what these various options are, what is your own evaluation of them, and what these costs are entailing.

We are always mindful, obviously, of the amount of time personnel are away from home. They obviously need the training and they need it to be efficient, but we would be very interested in that.

Have you considered the length of time that you leave these carrier battle groups on station? Is there some greater advantage in having 12 months, or 9 months, or is this difficult because of both strategic and tactical defense kinds of issues?

Do you need the same ships in each of the battle groups when they go to the different places in the world? I mean, there is obviously different threats that come from Iran and Iraq, and missiles that come from them and capabilities than you might have from other places.

Do you look at those when they actually assign these battle groups? Is that a consideration of it? If so, why? If not so, why not? Maybe I can define that a little bit as well. If you want to make a brief comment, then I will yield to the next Senator.

Admiral WACHENDORF. Yes, sir. I will make a short answer to that. You are correct, sir. One of the challenges we must overcome here is the diversity of within the surface combatants and other ships of the Navy. For example, there are 22 different baselines of weapon systems on surface combatants in the Navy today.

So as we rotate ships around and modernize that ship in Japan right now, the *Kitty Hawk,* it is 47 years old. It is one of the oldest ships in the Navy, but it has state of the art, what we call, C^4ISR electronics, so it would allow it do the work that it did during the war on the whole setting up of Kandahar and that SOF mission there. She is getting ready to go back again with the airwing embarked instead of the rotary wing SOF forces that operated out there just a couple of months ago.

So those ships that go, we try to make sure to have the best we can, the same common architecture of electronics. But we have too many different ones. It costs us too much overhead in the systems commands to maintain those.

One of the things as we go toward the future—and Admiral Mullen can tell you more about this—is striving for open architecture, where the human interfaces, the displays, and the button

pushing are more or less constant. It is the software, as technology grows, because we want to harvest our strategic advantage in information superiority, that is what changes. That will allow more interoperability.

One other comment, sir. The traditional view was when a battle groups goes, they stay together and we do not change out components. One of the initiatives that we are going to be starting this summer does exactly that. It breaks that paradigm by taking three 963 destroyers, leaving one, the U.S.S. *Fletcher,* forward deployed for 18 months, and then taking two other crews, not extra crews, from two other like ships with the same capabilities, and rotating them through at 6 month intervals.

When we do that over an 18 month period, we change, let's say, four of those transits, each a month long or 122 days of presence time over 18 months. There are some cultural things, that traditionally a crew thinks their ship is the best in the whole Navy. That is what we train them to do, and that is a good thing. So they are going to have to get used to thinking this other ship is a pretty good one, too, because there are other challenges.

But we are trying to break that up to get more efficiency out of the force we have, sir. I will be glad to take for action, as you discussed, a more detailed response.

[The information referred to follows:]

The carrier battle group (CVBG) is a combat formation of ships and aircraft, which comprises a principal element of our national power projection capability. It is the essential foundation of our ability to conduct operations as envisioned in the most recent edition of our strategic concept. It includes capabilities sufficient to accomplish a variety of situations short of war. Simply put, our mission in peacetime is to conduct forward presence operations to help shape the strategic environment by deterring conflict, building interoperability, and by responding, as necessary, to fast breaking crises with the demonstration and application of credible combat power.

Tasks which are critical to the success of initial crisis response missions are assumed to be undertaken in non-permissive environments characterized by multiple threats including, but not limited to, advanced anti-ship missiles, third/fourth generation fighter/attack aircraft, advanced electromagnetic sensors and jammers, modem cruise missile-equipped surface combatants, and attack submarines (both nuclear and diesel types). The CVBG is intended to be a flexible naval force that can operate in shallow, and narrow, waters or in the open ocean, during day and night, in all weather conditions, and under restricted emission control.

The primary objective in defining the CVBG capabilities and composition is to provide the combatant commanders with adequately balanced capabilities to deal with a variety of present and future threats. The objective is to train and equip forward deploying forces which are balanced, sustainable, flexible, and, most importantly, responsive to the requirements of the supported commanders and able to carry out tasking from the Secretary of Defense.

Most CVBGs are constructed nearly identical to ensure the right mixes of capabilities to respond to any threat, regardless of the geographical location. Training focuses on the most likely areas where the ships will be operating, but the skill sets ensure all are flexible enough to operate anywhere in the world on short notice when so tasked by the Secretary of Defense or President.

Senator KENNEDY. Thank you.

Senator Sessions.

Senator SESSIONS. Thank you.

Admiral Wachendorf, did I correctly interpret what you are saying, that the Navy is, in fact, giving increased emphasis on these kinds of potential savings that this is something unusual, other than just a normal routine constant evaluation that I know you do?

Admiral WACHENDORF. Yes, sir. Once before, I believe about 5, 6 years ago, we tried a variation of the Horizon concept that Senator Kennedy referred to. It did not work out very well. I attribute that to faulty leadership. It was not the sailors on the crews. It just was not managed well. We had those left behind, those forward deployed, there was too much segregation, and other management problems. We are learning from those experiments, and we are moving forward with this DD experiment in the fall and a similar one with the *Arleigh Burke*-class later in the year, sir. So in my 30 years of uniformed service to the country, I have never seen that before.

Senator SESSIONS. I have no doubt it will get a lot of complications. I just believe that in the modern world we are in, at the level our private sector's sophistication, they achieve and utilize the resources that are given to them. If you work at it as you will, we can gain some advantage, whether it is 5 percent, 10 percent, in the number of actual ships out there available in an emergency, ready for action in the areas of the globe that we need to be in with the current structure. Then that still does not keep us up where we need to be in terms of the total number of ships. One of the things that is interesting is your testimony indicating that a cost benefit analysis has led the Navy to the conclusion that *Spruance*-class destroyers should be decommissioned prior to their reaching 35 years of service life as they were projected to serve. Yet decommissioning those ships brings the Navy below the 116 surface combatants which the QDR states are needed to provide moderate to high-risk national security.

My question is: would you provide the subcommittee by the end of this month, if possible, the cost/benefit analysis regarding the *Spruance*-class destroyers, the *Ticonderoga*-class cruisers, and the *Oliver Hazard Perry*-class, too.

Second, I am concerned that the Navy is not maintaining the QDR base force structure while it decommissions these ships that do still have life. This generation will have a requirement to build additional ships.

Did your cost/benefit analysis determine the additional risk to the national security associated with dropping to 108 surface combatants?

Admiral WACHENDORF. Sir, for your first action, we will have all of it to you by the end of the month, sir. We have done that, as you may know.

[The information referred to follows:]

The cost-benefit analysis regarding *Spruance*-class destroyers, the *Ticonderoga*-class cruisers and *Oliver Hazard Perry*-class frigates based on annual programming costs for ships operations and support follows: CG $34.8 million; DD $28.3 million; FFG $20.5 million. Therefore, it costs approximately $8 million per year more to operate a DD over an FFG.

The decision to reduce the service life of the DD–963 class was based on affordability in the context of today's threat environment. DD–963 class ships are significantly less capable than the more modern and more survivable, *Aegis*-equipped DDG–51 class ships. The higher manning requirements and operational costs are a main driver in the decision process. The current average age of the DD–963 class is over 20 years and the DDG–51 average age is 6 years. The DD–963 is more costly to maintain from a purely maintenance perspective, not to mention combat system modernization costs to make the class effective against today's threats. The decision to drop below to 116 was a short-term reduction to allow for the development and construction of more capable ships. Although in the short term we drop below the

QDR force level of 116 we emerge with a more capable force beginning in fiscal year 2010.

The cruisers and the FFG–7 class are being extended to the maximum life. You are also correct that the cost benefit analysis indicated in the case of the 963s that it was not affordable to do so. We will put that in writing to you. A brief summary of that has to do with the operating costs of those ships.

They have 50 percent more crew than the FFG–7 *Oliver Hazard Perry*-class does. They also have five feet more draft. What we found is that the FFG–7 class is very valuable to us for tailored missions like maritime interdiction operations that we are doing in the northern part of the Gulf where the water is quite shallow. They also have helicopter capability, which is a valuable asset and their fuel costs are lower.

One of the liabilities of both those ships is that they do not have a volume search radar like the cruisers do. So we want to take as much money as we can afford to invest—and Admiral Mullen will correct anything I say improperly—but to have a strategic plan that looks towards the future where we can have reduced manning ships, or crews of a smaller size.

The DD(X) has approximately one-quarter of the crew size of the current 963 ship. We need to get there and get to the common architecture of combat systems that I mentioned before.

Another factor is stealth. We need to bring the enemy that we know is going to come after us in close where our defensive systems can be most effective. To do that, we have to minimize the acoustic, the radar, the electromagnetic, and other signatures that these ships put out. It would be cost prohibitive to do that to the 963 class.

We are using the FFG–7 class as a tailored mission ship until the littoral combatant ship comes online, and DD(X). We are using the cruisers for air defense and air radars. But we will go into more detail for you as you requested, sir.

Senator SESSIONS. Well, have you analyzed the most effective way to stay with the QDR number of 116 ships? Are you sure you have made the best analysis to try to meet that requirement? If we cannot get enough new ships, why are we decommissioning the serviceable ships?

We saw one, the *O'Brien,* that served ably in the Persian Gulf, that is set to be decommissioned soon.

Admiral WACHENDORF. Senator, you are exactly correct. These are hard choices to make. One point that comes in and weighs this investment balance of today versus tomorrow is the life-cycle cost of these ships.

When the Coast Guard was doing an in-depth study of the deep water project, looking for their future, they determined, and Navy data supported, that on almost all warships, 60 percent of the life-cycle cost is manpower, historically.

We are trying to reduce the cost of operating our Navy by going towards smart ship technologies and reduced manning initiatives, as I discussed in my testimony, to bring that cost down, so that we can make a better investment on our available resources. To do that, that is part of this analysis, but we will put that all in writing for you, sir.

[The information referred to follows:]

Smart ship is the introduction of commercial technologies for reduced ship manning. The results of implementing seven smart ship technologies has led to the reduction of 21 personnel with an annual cost savings of $1.01 million per ship. Currently there are six Aegis cruisers that have smart ship integrated ship control consists of integrated bridge system, damage control quarters, machinery control system, wireless internal communications system, fuel control system, integrated condition assessment system, fiber optic local area network and on board trainer for engineering, damage control, and voyage management.

Senator SESSIONS. Thank you. I do not know the answer to that. It may be that you are correct, that celebrating the transition to the more modern ships is worth the decline in the short-term of our combatants on the sea. But I think it is a question we have to ask.

Admiral WACHENDORF. Yes, sir.

Senator SESSIONS. I mean, we are looking at a rather substantial reduction in life expectancy of those ships we are running now.

Thank you, Mr. Chairman.

Senator KENNEDY. Senator Landrieu.

STATEMENT OF SENATOR MARY L. LANDRIEU

Senator LANDRIEU. Thank you, Mr. Chairman. Thank you very much for calling this hearing and I appreciate having this opportunity. I have a full statement for the record, but I would like to excerpt a few things, just for comments, and then I have a couple of questions.

With 32 percent of our naval force deployed in support of Operation Enduring Freedom and deployments to maintain our global presence, it is evident to me and to many Senators, actually, Senator Collins has spoken about this before many times, that we need to maintain a more robust shipbuilding program.

The Navy has given the U.S. the ability to project forces in the most inhospitable lands, and that is only going to continue. It is the duty of this subcommittee, under the able leadership of our Chairman and Ranking Member, to equip our sailors and marines with a modern fleet to conduct this war.

It is crucial that the Navy increase its ship procurement program to bring it in line with the minimum needed to maintain a fleet of 300 ships or more. But it seems to this Senator that no matter who is in the White House, when the Navy comes before Congress, they state that the Navy plans to address the shortfall in ship procurement the next year or the year after. Unfortunately, it seems like the outyears never quite come.

I know that there are budget constraints, but I am going to submit this, Mr. Chairman, to the record in hopes that we can continue with your leadership to push on this shipbuilding program, because it is very important for us even as the threats change and emerge. It becomes almost more important to be able to operate in inhospitable areas, as well as to deploy pretty quickly.

[The prepared statement of Senator Landrieu follows:]

PREPARED STATEMENT BY SENATOR MARY L. LANDRIEU

I would like to thank the Chair for holding this hearing today on such an important topic. I would also like to thank the panel for taking the time to come here today and testify.

Thousands of years ago, when the Greeks were facing an imminent war with the Persians, they were advised to build a wall of wood to protect the city of Athens.

The walls of wood were not walls surrounding a city, but the wooden navy of Athens. The Greeks embarked on a robust shipbuilding program, and soon had a Navy that was superior to the Persians. Their victory over the Persians ultimately came at sea, with the Greek navy forming an invincible wall of wood around the Greek homeland.

Today, we find ourselves like the Greeks did so many years ago. Instead of a wall of wood, America depends upon a wall of steel to protect her from her enemies. This wall of steel is the United States Navy. Time and again, it has been the Navy and the Marine Corps that has erected an unbreakable wall around us. But defense is only half of the Navy/Marine Corps equation. The Navy projects American power to far away and inhospitable lands. If we do not embark on a robust shipbuilding program, gaps will develop in our wall of steel. As we increase the operational tempo of our Navy, we are decreasing the amount of funds allocated for ship procurement. This creates a great danger to America as it executes a long and difficult war on terrorism. No nation on Earth can equal our Navy, and it is the duty of this subcommittee to keep it that way.

Current funding for the Navy's shipbuilding program is creating a growing gap in that wall of steel, which will threaten our ability to project sea power in future years. For the past few years, the Navy has not met its own goal of procuring 8 to 10 ships per year. In the last fiscal year, the Navy only procured 6 ships, and in fiscal year 2003 the Navy is only procuring 5 ships. This is half the number of ships required to sustain our present force levels and is $5 billion below the Clinton administration's 2001 request of $11 billion for 8 ships. According to current projections, this gap in our defenses will not be effectively plugged until fiscal year 2007, when the Navy is projected to procure 11 ships.

With over 32 percent of our Naval force deployed in support of Operation Enduring Freedom and deployments to maintain our global presence, it is evident that we need to maintain a robust shipbuilding program. The Navy has given the U.S. the ability to project forces in the most inhospitable lands. It is the duty of this subcommittee to equip our sailors and marines with a modern fleet to conduct this war. It is crucial that the Navy increase its ship procurement program to bring it in line with the minimum needed to maintain a fleet of 300 ships. Each year, it seems that no matter who is in the White House, the Navy comes before Congress to state that the Navy plans to address the shortfall in ship procurement next year, or the year after. Unfortunately the outyears never come.

I would like to close by simply pointing out that our current procurement levels create a gap in our wall of steel. Because it is difficult for our enemies to confront us conventionally, they must look for weaknesses in our defense. No doubt they will identify this gap in our naval wall, and they will exploit it. We must embark on a robust shipbuilding program to ensure that these gaps do not occur, and to maintain a modern naval fleet.

Senator LANDRIEU. I have one or two questions. I wanted to follow up on your crew swapping pilot——

Admiral WACHENDORF. Yes, ma'am.

Senator LANDRIEU.—and just to lend my support for that concept.

I know that all change is difficult, and there are cultural changes associated, but on the Readiness and Management Support Subcommittee and on some other subcommittees, Mr. Chairman, we have really tried to focus on maximizing our deployments while giving people enough time at home, enough time resting, which is really a quality-of-life issue, as our marines and sailors struggle to find time with their families and to have some real down time with the increased operations.

I want to say that I really encourage that kind of creativity in terms of ways that we can get our guys and gals home and give them a little more time with their families and some down time. If that would work, I would encourage you to continue it.

In addition, I want to commend you for your comments about trying to, and I may be paraphrasing here, but standardizing your hardware——

Admiral WACHENDORF. Yes.

Senator LANDRIEU.—so that we can continue to take the best of our research and development and take some things off-the-shelf. But if our hardware stays the same, it cuts down on our training and really makes our whole operation more efficient. We are seeing those efforts made across the board, and I really do commend you for that.

I would just ask a question, given the new thrust of our efforts in terms of really facing this new and emerging threat, different than the threats that we faced in the past, because fighting this war on terrorism requires new strategies, new equipment.

How did the Navy argue to the administration, or how did you help to frame the debate about what the Navy needs to, basically, position itself to be a real tool in our arsenal to fight terrorists? What were the arguments that you are making either to us or to the administration or to the general public? Because I would like, for one, to hear some more about that.

Admiral WACHENDORF. Yes, ma'am. Thank you for your kind words. I think the short answer to your question is that we are no longer in the threat-based environment. We argue for a capabilities-base. Our strategy is such that we do not know exactly where we are going to fight. We do not know what the rules of engagement are.

I am struck by a classmate of mine from the Naval Academy who is an admiral. Who would have thought that on Labor Day a year ago, this admiral would be riding horseback with 800 people, 700 miles inland, going up against fixed machine guns and rocket propelled grenades? He is the SOF commander for CENTCOM. Thank goodness that he had four F–14s right in front of him mowing the grass in a cavalry charge that prevailed in Mazar-e Sharif.

Senator KENNEDY. Well expressed.

Admiral WACHENDORF. We cannot predict that kind of thing. But we want to make sure that we have combat credible forces as we did 24 hours after the planes hit the Pentagon and the World Trade Center. We had two carrier battle groups, and we had a classified number, but an impressive number, of Tomahawk missiles, and an amphibious readiness group on-station ready to strike. So that is the kind of capability we want to go after.

One other comment, Senator, about the common combat systems and why that is important not only for crew swapping and interchangeable kind of things, but in reducing the overhead I spoke of in our systems command and training commands and elsewhere, it facilitates the use of simulators. The Navy is going to be world class in simulators so that we can still maintain the quality of life as best we can for our sailors who spend long times away from home.

But when they come back to their homeports, and this is part of the infrastructure question which related to Senator Kennedy's question, we want to have the facilities. There is no substitute for going to sea. I do not want to leave you with that point.

But we could do a lot better job at training our sailors on the state-of-the-art skills they need to go into harm's way right in their own home port without taking the whole carrier battle group underway. That is part of this crew swapping and the Horizon concepts.

Senator LANDRIEU. My time is up, but I do want to tell the Chairman that I have heard a lot of this discussion about switching from threat-based to capability-based. I really think we need to be really clear about what that means, and if we can actually afford what we are talking about. I am just very interested in pursuing that.

I have heard this now on several subcommittees. We have always based our budgets on what we perceive the threats to be, because we have to be careful and focused with our resources——

Admiral WACHENDORF. Yes, ma'am.

Senator LANDRIEU.—ready to defend in whatever ways we can, but focused based on good intelligence and good information and using your brain about where the threat might come from, so our resources are there. It is a little worrisome that I hear about this capability-base, because I do not know if we are trying to budget to be capable to fight anything, anywhere, anytime, terrorists, two theater wars at the same time. So I just want to say that.

Also I would like an update on Vieques when we can get to it, but I will come back on the second round.

Senator WARNER. Mr. Chairman, if I might interrupt, that is an important question. Why does he not put in the record exactly what that definition means from the shipbuilding perspective?

Senator LANDRIEU. What the difference is when we ask, because this is facing us in all of the committees.

Senator WARNER. Sure.

Senator LANDRIEU. I mean, we are either building a Navy to address the threats as we perceive them, or we are building a Navy based on this new term I keep hearing, "capabilities."

But I have always thought we need to build a Navy based on the threat that we perceive, and that threat changes and grows. We are seeing that before our eyes, and in order for us to make you as strong as possible, we have to agree on what that threat is. Then I would just like to ask you that, for the record.

Admiral WACHENDORF. Yes, ma'am. Both Senators raise excellent points, and I will take that for action. We will staff through a better answer.

But a short one to your question about the capabilities that I could give you now is, the Navy has a program, global naval force presence policy (GNFPP), which specifies exactly what kind of presence quantitatively in surface combatants, in amphibious readiness groups, in carrier presence, in Tomahawk strike capability, these come in different flavors, what the commanders in chief, the warfighters need on-station, and that is the capability that we are assigning up to execute.

When I suggested that we were going away from a threat base, I did not mean to suggest that we were being amorphous, or just everything everywhere all the time. We could not do that.

But what we do want to do is support the CINCs, and they do describe what their requirements are. That is what we are meeting, and we can address that more fully in an answer for the record, ma'am.

[The information referred to follows:]

The 2001 Quadrennial Defense Review Report outlined a new defense strategy that is built around the concept of shifting to a "capabilities-based" approach to de-

fense. That concept reflects the fact that the United States cannot know with confidence what nation, combination of nations, or non-state actors will pose threats to vital U.S. interests or those of our allies and friends decades from now. It is possible, however, to anticipate the capabilities that an adversary might employ to coerce its neighbors, deter the United States from acting in defense of its allies and friends, or directly attacking the United States or its deployed forces. Moving to a capability-based force requires the United States to focus on emerging opportunities that certain capabilities can confer on the U.S. military over time.

This applies to shipbuilding, as well. We must focus our ship development programs on realizing a transformed maneuver and expeditionary force able to overcome anti-access and area denial threats.

The Unified Commanders in Chief (CINCs) influence both the requirements and programming process. They propose mission need statements, which identify deficiencies requiring material solutions to resolve and review every requirement—document for adequacy during document staffing prior to approval. The Joint Requirements Board and Joint Requirements Oversight Council routinely visit the CINCs providing an opportunity for direct CINC input into warfighting requirements issues. Additionally, each CINC submits issues for consideration into the Chairman's annual program assessment and recommendations, as well as provides an annual integrated priority list requiring response and consideration in each Service's respective budget submission.

Senator LANDRIEU. Thank you.

Senator KENNEDY. Could the Senators give me their attention for a moment—the purpose of our next hearing, which is on April 9 at 2:30, is to receive testimony on Navy equipment required for fielding a 21st century capabilities-based Navy in review of the Defense Authorization Request. So that is going to be the subject of that hearing on April 9 at 2:30.

Senator Collins.

Senator COLLINS. Thank you very much, Mr. Chairman.

Admiral, I want to follow up on the first question raised by my friend from Louisiana. The proposed Navy budget would take our surface combatants, the amphibious warships, the combat logistics ships, and the mine countermeasures warfare ships below the QDR critical force structure levels.

This leaves the Navy's regional commanders short on available naval assets, increases the OPTEMPO, and results in even further strain on our already-stretched fleet. Now, the CNO has very candidly testified that the naval force structure ideally should be in the neighborhood of 375 ships, and today instead we are at about, I think it is 318 ships.

This leads me to the conclusion that the Navy is going to have difficulty in meeting the CINC's current commitments. You said in your testimony that you are exploring several initiatives to alleviate the strain on our current OPTEMPO. You are looking at different manning requirements, different configurations.

But in the final analysis, the real problem is that we do not have enough ships. In the final analysis, the fact is that numbers matter. I guess I would ask you, as much as I admire what you are doing to try to deal with the problems that are created by past and current and future budgets, what are we going to do to ensure that our naval forces can reach our recapitalization goal of eight to ten ships per year by the end of the Future Years Defense Program?

Admiral WACHENDORF. Well, ma'am, you are exactly right. We do not have enough ships. I do not want to leave you with the impression that these manning alternatives are going to solve the problem and that we can live with the shipbuilding rate that we are at right now and get to 375 or get a Navy that has the same fighting punch

as 375 ships. Vice Admiral Mullen will follow me and give you more information on that.

We want to be right up front and clear that these manning things get improvements and efficiencies. I mentioned 4 months out of 18, 10, 15, 20 percent improvements. We want to do that regardless of the number of ships in the Navy, because that is our job to be good stewards to public trust and get the most bang for the buck we can.

We also have to be considering the surge requirements, because it is not just what we rotate through 365 days a year. If we execute a major operation, that number of aircraft carriers as we have in the past could be expected to increase significantly, more than double.

We are ready to do that. It was just last week at the all-flag officer conference, Admiral Natter, the commander of the Fleet Forces Command in Norfolk, mentioned that the investment that the Navy has made in readiness, both aircraft and ships, to eliminate the degradation that ships and planes experience coming back from deployment, has allowed us to make that surge right now.

We are ready; it is a classified number which we could pass to you separately, but to greatly increases our Navy presence, because those ships are maintained and ready to go.

Tough choices were made, which Admiral Mullen can give you a better answer on than I. But that is one of the factors that went into this shipbuilding decision that we are at right now, because we knew we had to fix our readiness problem.

Admiral Clark has gone on record as saying for a large number of years, the Navy has deliberately understated requirements and then deliberately underfunded understated requirements for readiness accounts, and we have fixed that.

Senator COLLINS. I understand those tough choices, but what I am worried about is, until we tackle the underlying problem that we are not building enough ships, it does not matter how creative we are with the manning requirements.

I mean, it is encouraging that on the horizon with the DD(X) program, that we are looking at potentially greatly reduced manning requirements that are going to be helpful. But let me go on to another issue.

There is great concern in the community that while the morale of our sailors and airmen is now very high among all the Armed Forces, that sustained deployments with increased OPTEMPO is ultimately going to yield a negative effect on retention, as well as increased wear and tear on equipment.

You mentioned, in your written statement, the U.S.S. *Theodore Roosevelt,* which recently spent 160 consecutive days at sea without a port visit. Senator Reed and I visited this aircraft carrier in January as part of our trip to Central Asia. At that point, the carrier had been at sea for 113 consecutive days.

One of the naval officers came up to me, and I thought he put it very well. He said, "We are proud and we are happy to break the record this time, but we cannot do it over and over and over again."

As dedicated and patriotic as our sailors are, there is a limit to what we can ask of them. I would ask you, what change do you

foresee as the most promising of the ones that you have looked at to ensure that increased operational days are available to the CINCs, and yet we are not ultimately affecting the quality of life for our sailors to the point where we are going to see recruitment and retention problems once again?

Admiral WACHENDORF. Senator, you are exactly correct. I agree with everything you say.

There was a young lieutenant that just checked into my office who came off the *Enterprise*. She was one of the carriers that was on station when this war started. The *Enterprise* stayed out there for 7 months. They were headed home, and then went right back on station.

This young lieutenant is a female graduate of the Naval Academy and was the Tomahawk strike planning officer for the airwing. She put 84 rounds right on target. Every one of them hit. She is better than I ever was as a lieutenant.

I do not know where we find these people. They are great, let me tell you that. When she came back off of deployment, she normally would be allowed some stand down or R & R time. Because my office in the Pentagon lost 28 people out of the 42 Navy dead, we were hurting for replacements, and she gave all that up just to come in and work with us and helped prepare for this brief, as a matter of fact.

So that is not a direct answer to your question, but I wanted you to know that. When I say that people are our greatest asset, they really are, better than they ever were. We better take care of them.

I think a more direct answer to your question, Senator, refers to the use of simulators. In the past, when we would go through this readiness degrade coming back from these long deployments, we would take engines out of airplanes so they could not fly. We would not give the ships the steaming hours they needed to practice their skills, and there would be a normal rotation of people.

We train as a team, not individuals. So to get the team together, we would have to get the aircraft carrier, the destroyers, and every submarine, everybody to scene, to rehone their skills.

The use of simulators in network-centric warfare where we can link up—actually in port, the U.S.S. *Coronado* is doing this in fleet battle experiments right now, using joint services—is not unique to the Navy. With integrating overhead sensors and other classified programs, we can get great training value and we can do it in an 8-hour working day. Then they can come home, so they do not have to spend so much time away from home. I think that is the key to the future.

The DD(X) with the standard combat and advanced network-centric warfare concepts, littoral combat ship (LCS), the new attack submarines, CVNX and LPD–17 are all leveraging this technology as best we can. It is very important to the quality of life of our sailors.

Senator COLLINS. Thank you.

Thank you, Mr. Chairman.

Senator KENNEDY. Senator Reed.

Senator REED. Thank you, Mr. Chairman. I have just one question on Admiral Wachendorf's testimony.

Could you summarize the one or two major points that have already emerged from your review of the current operations and how it impacts on the fleet presence in the future?

Admiral WACHENDORF. The war on terrorism, sir?

Senator REED. Yes.

Admiral WACHENDORF. Yes, sir. We are still studying those. As a matter of fact, we have a meeting tomorrow with the CNO and with Admiral Mullen and the leadership of the Pentagon. It might be a little premature for me to say these are the final lists. There are certainly many, and we continue to study them.

One of them is the importance of combat credible forward based naval forces. Sir, I saw you just come in, but we had two carriers, expanded to three, an amphibious readiness group, a large strike force, and Tomahawk-capable platforms on station that were not used. I am sure there is a lot of reasons as to political decisions to engage were made, but they were ready 24 hours after the tragic events of September 11.

They were not tied to a host nation's port, or flying over countries or the need to operate off of air bases. That can be a problem as we look at different scenarios here. So that is one of the lessons.

Sovereign combat-credible naval forces are something that are a value in this war, and as we look to the future in the war on terrorism, that will continue to be the case.

The other, perhaps less—and this is my personal opinion, sir, which will be refined by my chain of command, I am sure—is the readiness bathtub. Part of that bathtub of readiness is we underfunded the ordnance accounts. Precision-guided munitions were 75 percent of all the munitions dropped in this engagement. That was the right thing to do. But we do not have enough of them. We need to buy more. There are all types.

The good news is this is a joint ordnance thing, so we can get some economic order quantity procurement advantages with the Air Force and the Marines. That would be my second one, sir.

Senator REED. Thank you very much, Admiral.

Thank you, Mr. Chairman.

Senator KENNEDY. John, do you want to——

Senator WARNER. Oh, thank you, Mr. Chairman. I would like to go ahead and hear the next panel.

Senator KENNEDY. Thank you very much, Admiral.

Admiral WACHENDORF. Thank you, sir.

Senator KENNEDY. You will be hearing from us and we will appreciate your responses.

Admiral WACHENDORF. My pleasure, sir.

Senator KENNEDY. Secretary Young, Admiral Mullen, we will be glad to hear from you at this time.

Admiral Mullen, if you want to proceed.

Admiral MULLEN. Yes, sir.

STATEMENT OF VICE ADM. MICHAEL G. MULLEN, USN, DEPUTY CHIEF OF NAVAL OPERATIONS FOR RESOURCES, REQUIREMENTS AND ASSESSMENTS

Admiral MULLEN. Senator Kennedy, Senator Sessions, Senator Warner, Senator Landrieu, Senator Reed, and the supporting staff,

I greatly appreciate the opportunity today to appear before you and to discuss the extremely important subject of shipbuilding.

Secretary Young and I have prepared a joint statement and would ask that it be submitted for the record. I would thank you for the opportunity for a brief set of opening remarks.

As I sit here today, I could not be prouder to be in the uniform of our Nation's Navy. I consider it a privilege to still be able to serve and do so at such a critical time for our country and, indeed, in many respects, the world.

The performance of our young men and women from all of the services has been truly spectacular. In particular, the sailors and marines of our modern naval forces have truly made a difference in the global war on terrorism and will continue to do so.

As naval forces always are, we were ready on day one and provided the winning combat power from the sovereign decks of our ships that enabled initial and continuing success in the war in Afghanistan.

The mobility, flexibility, and striking power of our carrier battle groups and amphibious ready groups were war-winning capabilities without which this country could not prosecute this war. As has been the case since ships went to sea, we did not have to ask permission from anyone. No visa was required.

Let me elaborate with a few key statistics. As of yesterday, carrier-based naval aviation, Navy and Marine Corps, have flown 6,399 sorties over Afghanistan, over 77 percent of all the sorties flown. Most of these sorties were possible only through Air Force tanker support. These strike sorties have been as long as 10 hours and have averaged up to 7 hours, the equivalent of taking off in Washington, striking targets in St. Louis, and flying back.

About 84 percent of these sorties that delivered ordnance hit a target; and about 87 percent of the ordnance delivered from the Navy was precision-guided, which is a complete reversal of where we were in Operation Desert Storm.

Something like 80 percent of the Navy sorties delivering ordnance did it against targets unknown to the pilots when they launched. Naval aviation, combined with Army special forces ground forward air controllers, proved an unbeatable combination against real-time targets.

Naval aviation provided 24/7 strike sortie coverage for our troops on the ground. Marines at Kandahar, one of the most remote cities in a landlocked country far away, were never without Navy top cover.

Had I been in the position to testify before you last year, and had I predicted our Navy strikers would be on missions up to 10 hours long, flying over 1,200 miles round trip, and our Marines would be taking objectives over 400 miles inland from our ships at sea, I suspect my testimony, let us just say, could have possibly have had some healthy skepticism.

But this is just another example of what I have learned in my 33-plus years of service. Give sailors and marines clear goals and good robust tools and they will move mountains. In Afghanistan, moving mountains has been the order of the day.

Our ability to execute this mission is eloquent testimony to the long-standing support provided by you and this Committee, for which I, on behalf of our sailors and marines, are very grateful.

Likewise, our execution is testimony to the vision of Secretary England and Admiral Clark. In this budget, they have continued to tackle the immediate priorities of manpower and current readiness. As a direct result, sailors are reenlisting at record rates, and our naval forces are operating in full support of the joint campaign with our Air Force and Army counterparts with truly awe-inspiring combat prowess.

Committing the Navy to these priorities required tough choices, which were not painless. A long-term war on terrorism will certainly pose additional fiscal challenges, which you are just beginning to grasp now. Increased munitions usage, increased flying hours and steaming days, increased materialization rates are being factored into our programming efforts, and this budget begins to do just that.

More to the point today, manpower and current readiness priorities have, in part, prevented us from investing in our future accounts, including both aircraft and shipbuilding procurement. Almost 80 percent of our topline increase was budgeted in these two accounts.

Our goal has been to pay for the Navy we have today in order that we can fight and win today. It is doing so now. When Admiral Clark testified before the full committee on March 7, he indicated that the total acquisition funding stream was about $23 billion short, and that it needed to be about $33 billion in order to recapitalize the entire fleet, aircraft, ships, submarines, at a rate that will maintain the Navy the Nation needs. It will not surprise you when I say that Admiral Clark is correct in his estimate.

Admiral Clark also testified to a Navy that requires about 375 ships. As we look to a future fleet of about this size, it reflects a transformed Navy with a universal situational awareness in a fully netted environment, a Navy with persistence as a byword for all of our capability from surveillance to strike, a Navy characterized by cycle times reduced by an order of magnitude in acquisition, in speed of command, and in strike.

It is a Navy with fast, lethal, dispersed, netted force components, which can bring deadly combat capability to bear within seconds of contact, a Navy which will offer increased global presence and engagement around the world, and a Navy with what it takes to win.

Such a Navy will include an expeditionary strike force concept that provides additional fire support and striking power organic to our amphibious ready groups in the form of surface ship and submarine escorts with 155 millimeter guns and Tomahawk missiles; the introduction of squadrons of littoral combat ships to tackle the difficult missions of mine warfare, anti-submarine warfare, and surface warfare; surface action groups with ballistic missile defense capability available early in the conflict; and SSGNs capable of strike and special operating forces campaigns.

Meeting the requirement and finding that extra $10 billion for this kind of Navy is my clear charter along with the rest of the Navy leadership.

I am in the midst of deliberations for the fiscal year 2004 budget right now, and I am committed to find a large chunk of that money and use it to recapitalize our Navy, particularly in the area of shipbuilding.

While the future is always very difficult to predict, as you pointed out, Senator Landrieu, I will do all in my power to ensure we will build more than five ships next year.

Our current budget sets a firm foundation for the future that I am confident we can build on. We continue building the excellent *Arleigh Burke*-class DDGs. The wide-ranging utility of this platform is being validated daily. We have achieved production line maturity even as we have built more capability into later flights of the class.

Our global war on terrorism campaign analysis and transformational concept of operations for the future that it requires indicates a solid need for more DDGs. This is also a platform that will potentially embed the important capability of area ballistic missile defense. This was a program cancelled in this budget.

The warfighting requirement as stated last August by the Chairman of the Joint Chiefs of Staff is still a critical capability, which we need to restore as soon as possible.

This budget will get the DD(X) program on track, building on a solid research and development base with an executable plan to transition seamlessly to ship procurement with a spiral development strategy, which keeps these ships ahead of the technology, capability and cost curves at the same time.

The DD(X) spiral technology development enables the most efficient insertion of high payoff technologies into the future and in service ships with the least amount of risks. CG(X), the follow-on cruiser, will share a common hull form and propulsion plan architecture with DD(X) and will use many of the same innovative technologies to reduce crew size, increase joint command and control connectivity, and reduce operating and support costs.

The littoral combat ship will benefit from DD(X) technology development by taking advantage of advanced automation technologies, high-density propulsion plans, and increased nodal and plants C^4I connectivity.

In-service surface combatants will receive technology upgrades to be modernized that will extend their combat capabilities and their service life and keep them at the leading edge of combat effectiveness.

Together, the family of ships, DD(X), CG(X), and LCS, along with in-service Aegis ships, will extend the Navy's combat reach to from the upper limits of the Earth's atmosphere to the clutter, confusing and treacherous shoals of the littoral.

Both of these programs speak to the ongoing transformation of the Navy. Transformation issues we propose investing in are wide-ranging, driven by our strategy of projecting sovereign combat power forward and have clear objectives in terms of delivering capability to our warfighters. Building our network-centric operations, our expeditionary posture and culture, and our technological prowess, they promise to deliver a revolution in warfare from the sea.

To sum up, I want to thank you again for your continuing support of our Nation's Navy. I look forward to tackling the challenges ahead, confident in the ability of sailors and marines to overcome any obstacle, to move any mountain, given the right tools. I look forward to your questions.

Senator KENNEDY. Secretary Young.

STATEMENT OF HON. JOHN J. YOUNG, JR., ASSISTANT SECRETARY OF THE NAVY FOR RESEARCH, DEVELOPMENT AND ACQUISITION

Secretary YOUNG. Chairman Kennedy, Senator Warner, Senator Landrieu, Senator Reed, and my colleagues on the staff, thank you. Thank you very much for the opportunity to testify on shipbuilding programs for fiscal year 2003 and the Navy's budget request.

In 2001, the Navy and Marine Corps team represented U.S. interests and provided a presence throughout the world. In September of last year, that presence became an immediately available response capability. You all know well the central role played by naval forces in Operation Enduring Freedom by carriers, amphibious ready groups, sea-based aviation, and Marine ground forces. The people and their equipment have performed magnificently, delivering combat power from the sea against our enemies in a landlocked nation.

The fiscal year 2003 budget preserves this demonstrated capability, placing first priority on sailors and marines, their training and the readiness of their equipment.

Next, the budget addresses the current readiness of our Navy and Marine forces through investment in spare parts and repair activities for current systems, modernization of existing platforms, and procurement of new weapons, aircraft, and ships.

Finally, the Navy increased the research, development, test, and evaluation account to make investments in new systems in technologies for our naval forces of the future. Within the available dollars, the fiscal year 2003 budget strikes a good balance among many competing demands. Your Navy and Marine Corps team are working hard to make sure that every acquisition dollar buys the maximum amount of capability.

A number of key principles are guiding our efforts to improve and change how the Navy and Marine Corps buys advanced technology for weapons and platforms. First, we must improve and leverage the equipment that we now have and will use for years to come. Improving sensors, installing data links and networking the command and control systems on these ships allows our current assets to fight more effectively.

Secretary England has testified before this committee about the quantum improvements in warfighting effectiveness that come by coupling evolutionary improvements and existing systems to new operational concepts and tactics.

Second, we are working to properly fund and carefully manage the ongoing modernization programs. To enable the transition to new capabilities, we must first have a solid, stable funding foundation for our ongoing programs as well as a more business-like approach to acquisition.

These same principles are also guiding our shipbuilding strategy. First, we are improving and leveraging the equipment that we now have and will use for years to come. Installing systems such as cooperative engagement capability and naval fires network will dramatically enhance the performance of our current ships.

Second, we are working to properly fund and carefully manage the ongoing shipbuilding programs. As we transition to new capabilities, we will have this solid foundation beneath our programs.

Our first priority within the shipbuilding program has been to control cost growth and eliminate the costs of prior year bills on ships. Many factors have contributed to the cost growth: continual configuration changes; unanticipated engineering challenges with lead ships; unforeseen growth in shipyard labor rates, cost increases for material and equipment; inflation and fiscal constraints; budget reductions or rescissions; and over-aggressive budgeting to optimistic targets.

In the fiscal year 2003 budget we have taken several steps to forcefully address these issues. We have fully funded shipbuilding programs to the current CAIG, Cost Analysis Improvement Group, estimate or the program manager estimate.

We have taken a round turn on change orders. Once we baseline a ship, any subsequent changes will be thoroughly reviewed for cost and schedule impacts. This applies to both shipbuilding programs and programs for the equipment that goes into these ships. We will not add changes until there is full concurrence with funding and justification.

In conjunction with industry, we are reevaluating the efficiency of procuring small ship classes from multiple yards. We have also worked hard to stabilize the DDG–51 shipbuilding profile to allow smooth transition to DD(X) and CG(X).

Finally, we are placing greater emphasis on understanding the potential for technology or requirements changes to grow the costs of our existing acquisition programs. Spiral development and backfitting of technologies may be the best approaches to ensure that we avoid cost growth and make the proper trades between competing current investment priorities.

All of these steps are critical to our ability to build a ship within the planned budget. Cost growth on ship construction contracts has reduced the confidence of the Office of the Secretary of Defense and Congress in our ability to manage these capital programs and eroded our sound business foundation.

The Navy is committed to restoring that confidence and building stable programs to ensure force structure requirements are sustained. Looking ahead, the Navy continues to focus on building new and transformational ships to meet our future needs. Our fiscal year 2003 budget request calls for construction of five ships, two DDG–51 class destroyers, one *Virginia*-class submarine, one *San Antonio*-class LPD–17 amphibious transport ship, and one *Lewis & Clark* T–AKE auxiliary cargo and ammunition ship, plus incremental funding for the fiscal year 2002 LHD–8 and two SSGN conversions.

There are 36 ships presently under contract. We also requested advanced procurement funding for the sixth and seventh *Virginia*-class submarines, advanced procurement for the CVN–70 refueling

complex overhaul, the service life extension of three LCAC, landing craft air cushion, and one *Los Angeles*-class submarine engineered refueling overhaul, ERO.

The budget request also fully commits the Navy to the conversion of all four *Ohio*-class SSBNs into SSGNs, by providing the necessary ERO funding and conversion funds for the four-ship program. Finally, the budget funds the development of the DD(X) family of ships.

In the fiscal year 2002 budget, Congress played a critical role in providing the budget resources necessary to keep this stable foundation under our current programs, and the Department is grateful for your support.

The fiscal year 2003 budget builds on that foundation and these principles to prepare the Navy and Marine Corps for the future. Today, the forces of the Navy and Marine Corps remain forward deployed and are protecting America's strategic interests near and far as an essential part of our Nation's joint force. We have the finest naval force in the world.

While we face a number of challenges, such as recapitalizing an aging infrastructure and combatting both symmetrical and asymmetrical threats, we are clear of purpose and focus on the future.

Thank you again for allowing me to testify, and I look forward to your questions.

Senator KENNEDY. Thank you very much. Without objection, your joint statements will be placed in the record.

[The prepared joint statement of Vice Admiral Mullen and Assistant Secretary Young follows:]

PREPARED JOINT STATEMENT BY JOHN J. YOUNG, JR. AND VICE ADM. MICHAEL MULLEN, USN

Mr. Chairman, distinguished members of the Subcommittee, thank you for this opportunity to appear before you to discuss the Department of the Navy's fiscal year 2003 ship programs budget. The United States has always been a maritime nation, and our mastery of the seas, sustained by forward-deployed U.S. naval forces, ensures our access to our economic, political, and security interests overseas. Our economic prosperity, now more than ever before, is inextricably tied to the global economy—a global economy that is totally reliant upon maritime trade to sustain its growth. The oceans are, therefore, the "great commons" of this economy: with public access to all, and so used by all. The United States Navy and Marine Corps ultimately guarantee this freedom.

The need for continuing our mastery of the seas was revalidated by the events of September 11, 2001. The United States Navy provided the sovereign soil to project power and protect our national interests when nations could not support hosting our land-based military. During Operation Enduring Freedom, carrier-based Navy and Marine aircraft have provided the preponderance of combat sorties, while Tomahawk cruise missiles fired from surface ships and submarines struck communications and air defense sites. Marines from amphibious ships provided the first large U.S. ground presence in Afghanistan and were supported ashore by naval construction battalions which restored runways and enhanced the conditions of forward operating bases far inland.

Command of the seas, provided by U.S. sovereign power deployed forward, provides a tangible demonstration of our commitment to shared interests, and underwrites our political alliances and friendships across the globe. It is important to say that we will be there when needed to maintain the freedom of these shared global commons, deal effectively with shared problems and to respond quickly to acts of aggression . . . but, it means even more to be there beforehand.

Finally, the success of future joint combat operations will require us to have immediate and sustained military access wherever and whenever it is needed. Command of the seas—which are fully two-thirds of the world's surface—provide that global access, which is a priceless strategic advantage for our Nation.

We are building upon our tradition of expeditionary operations as we transform into "network-centric"and "knowledge-superior" services. Knowledge superiority is the achievement of a real-time, shared understanding of the battlespace by warriors at all levels of command. This in turn, will facilitate our ability to remain forward by providing the means for timely and informed decisions inside any adversary's sensor and engagement timelines.

To support this strategy and our forces, the President's fiscal year 2003 budget request increases the amount of research, development, and overall procurement investment critical to maintaining our Navy and Marine Corps team as the pre-eminent combat force in the world. We seek an agile, flexible force, that can counter both the known and the unforeseeable threats to our national security.

STRATEGY

After years of under funding, the fiscal year 2003 budget request represents a significant improvement for the Department of the Navy (DoN). Although the DoN still had to make difficult priority decisions, the final request represents the best mix possible among competing priorities. The highest priority items are directed at our most valuable asset, our people. The Navy and Marine Corps are committed to our people and their training as well as the readiness of their equipment. As the next priority, we have funded systems such as cooperative engagement capability (CEC) and the naval fires network (NFN) to enhance the performance of the current warfighting systems. Finally, we have sought to fully fund our ship and aircraft production programs while adding funds to develop new capabilities such as the family of surface combatants led by DD(X), the Joint Strike Fighter (JSF) and SSGN.

I believe current combat capability is healthy and the fiscal year 2003 budget request provides a stable foundation from which the Marine Corps and Navy will continue to work with the other military services to determine the best path to transformation and the best aggregate warfighting capabilities for our country.

Completion of Prior Year Shipbuilding Contracts

A key component of our effort to build a stable foundation has been a strong emphasis on adequately estimating and managing program costs. During the past year, no other single issue has received more management attention by the top levels of the DoN than the completion of prior year shipbuilding account. Cost growth on ship construction contracts has eroded the confidence of the Defense Department and Congress in our estimating, budgeting, and execution process for current and future procurements. The Navy is committed to restoring the confidence of Congress and building stable programs to ensure force structure requirements are sustained.

Many factors have contributed to the cost growth of current ships under contract, including:

- Configuration changes;
- Unanticipated challenges with the design and production of lead ships;
- Unanticipated growth in shipyard labor rates;
- Low rate procurement of vendor material and government furnished equipment;
- Inflation and fiscal constraints; and
- Budget reductions/rescissions.

All of these factors, but particularly fiscal constraints, resulted in programs being aggressively budgeted. Congress provided over $700 million in fiscal year 2002 to address those ships contracted in 1995 to 2001 in order to deliver ships with relevant capability to the fleet. The fiscal year 2003 budget requests $645 million to address similar shortfalls in order to deliver ships appropriated in 1996 to 2001. Also visible in the Navy's budget request are the known requirements through the Future Years Defense Program (FYDP) to address similar issues for ships appropriated through 2001. The Department will soon be submitting a formal report to Congress on this issue, but I will briefly outline the management actions taken to mitigate the existing condition and to prevent a reoccurrence of the situation for ships requested in fiscal year 2003 and future budget submissions. To prevent further increases to the prior-year-completion funding shortfall, the Navy has instituted the following corrective actions:

- In fiscal year 2003 and beyond, shipbuilding programs have been budgeted to the Cost Analysis Improvement Group (CAIG) or program manager (PM) estimate.
- Change order budgeting levels have been established to reflect maturity of respective programs.

- Shipbuilding and government furnished equipment (GFE) program managers have been directed to limit changes to a small number of critical safety issues.
- The Department has reestablished the Ship Configuration Improvement Panel (SCIP) to ensure required changes are validated and fully funded.
- The Department further motivated industry cost performance through incentives in fiscal year 2002 contracts.
- Prior decisions regarding workload splits among multiple yards have been reevaluated in light of the increased cost of having multiple "lead" ships.

If costs continue to rise in spite of these management efforts, the Department is prepared to descope or delay capability to maintain a funded, executable program.

Shipbuilding Plan

Recapitalization of the naval force structure demands implementation of a shipbuilding strategy that is robust with respect to the capabilities of the ships and warfare systems fielded, innovative with respect to design, technology, funding mechanisms and industry participation, and stable with respect to the annual investment and the essential industrial base. This shipbuilding strategy must produce a recapitalization plan that is not just a plan for the next year, but a plan that is supportable and executable across the FYDP and sustainable into the foreseeable future. What has been done too often in the past, using the recapitalization funds for battle force ships as a surge tank to attempt to balance a wide array of Navy programs, can not continue.

Our fiscal year 2003 budget request calls for construction of five ships and the conversion of two submarines in fiscal year 2003: two DDG–51 class destroyers; one *Virginia*-class submarine; one *San Antonio* (LPD–17)-class amphibious transport dock ship; one *Lewis & Clark* (T–AKE) auxiliary cargo & ammunition ship; and incremental funding for the fiscal year 2002 LHD–8, resulting in 36 new construction ships under contract. In addition, we have requested funding for advance procurement of the sixth and seventh *Virginia*-class submarines, advance procurement for the CVN–70 refueling complex overhaul, the service life extension for three landing craft air cushion (LCAC) craft, and one *Los Angeles*-class submarine engineering refueling overhaul (ERO). The budget request fully commits the Navy to the conversion of four *Ohio*-class SSBNs into SSGNs by providing the necessary funding for the ERO and conversion needed to execute the four-ship program. When the four conversions are completed, these submarines will provide transformational warfighting capability, carrying up to 154 Tomahawk cruise missiles, support sustained deployed special operating forces, and sustain our submarine force structure. As we move forward, there are four key elements to our shipbuilding strategy.

Establish Core SCN (Shipbuilding and Conversion, Navy) Program—First, is the need to properly price and fund the systematic recapitalization of primary battle force ships. This can best be accomplished by using full funding in each year with a stable investment for quantities of known needed ships. The mix of ships must provide the minimum essential force structure to meet warfighting requirements and the minimum essential industrial base workload to sustain needed capacity. This systematic recapitalization forms the core of the shipbuilding and conversion strategy, a core that does not change with every budget cycle, a core that is not used as a bill payer for shortfalls in other appropriations. The core may be added to in any given year in order to build-up force structure numbers, but the core investment must not decrease.

Leverage Creative Funding Methods—Second, ships need to be bought smartly and, where appropriate, creatively, allowing exploration and leveraging of the use of funding mechanisms which produce industrial effectiveness and efficiency. There are several such mechanisms that when applied judiciously will allow stabilized investment and reduce the periodic funding spikes and cost overruns that plague efforts to maintain a balanced, stable industry workforce and material acquisition strategy. Specifically, advanced construction in conjunction with advanced procurement may prove to be advantageous in smoothing out the periodic spikes associated with high cost capital ships, the big deck ships, that serve to disrupt the systematic recapitalization of other battle force ships and the efficient level loading of the industrial base. The use of research, development, test, and evaluation (RDT&E) appropriations for the lead ship of a class at each shipbuilder can aid in stabilizing a new construction program through better management of the inherently higher risk and capitalizing on the opportunity for industry collaboration. Furthermore, yearly review of RDT&E budgets will improve the fidelity in the execution year budget requirement and allow flexibility to adjust outyear budgets if critical technologies are delayed or require additional maturation. In an era of teaming with in-

dustry, leveraging of the opportunity provided by these developmental efforts and investments must be pursued.

Another area that we need to look at closely is our process of budgeting for ships, particularly their electronic systems. The Navy is currently building the fiscal year 2004 budget request. Thus, the Navy is now estimating the cost of ships that will be authorized and appropriated about 18 months from now. Those ships will take 4 to 7 years to build. So today, program managers have to select and estimate the cost of electronic systems that will not be installed for 2 to 4 years. We are baselining information-technology systems for a ship 2 to 4 years before the need for these systems. Baselining the electronics in a ship in year one almost guarantees that those systems will change over the course of the ship's construction.

The program manager is faced with two choices. Buy the systems that were budgeted, building early obsolescence and capability limits into the ship or alternately, budget a greater amount for changes to allow the ship's information technology (IT) systems to be changed to pace technology. However, the system resists budgeting adequate funds for changes or management reserve.

We are working to find more efficient ways to proceed. We cannot let contracts and the fear of losing money drive us to make bad procurement decisions. I hope to urge a review of budgeting practices to allow phasing of money to be more consistent with when the funds are required.

Implement Cost Saving Measures. Third, it is essential to pursue those actions that will reduce the cost of ships. The factors that will achieve cost savings, or simply provide more capability per dollar, are understood within the industry and need to be applied by the Navy with discipline. Stability in design and production with reasonable cost targets are the most important aspects of reducing ship cost. Prior year shipbuilding cost increases are severely jeopardizing the ability to recapitalize battle force ships. The Navy and industry need to work together to achieve cost savings where possible and ensure that the cost of ship procurements are properly estimated and budgeted, and then executed within the established budget.

Insert Key Ship System Technology. Fourth, implementation of processes that provide for the modular insertion of rapidly evolving technology, so that warships remain capable in the face of emergent threats, is needed for key ship systems. These processes must provide the ability to insert new technologies into ship classes at planned points without disrupting shipyard production or increasing cost. Such planned spiral development, that exponentially increases capability through periodic upgrades, requires the efficient and expeditious transition from rapid prototype to production systems. Controlling cost while decreasing the cycle time for technology insertion will require the use of open architectures, module interface standards, commercial processors, etc. in conjunction with strict configuration control. Shortening this cycle time will require simultaneous acceleration of requirements and acquisition processes and changes to how programs and budgets are developed for these systems.

In combination, these elements of the shipbuilding strategy will provide for needed capability increases in the warfighting force and stability in the industry that is the key to the future recapitalization of the naval force structure. Such combat capability and shipbuilding stability can only come from a Navy commitment to define and stay the course.

Our fiscal year 2003 shipbuilding plan provides the best available balance between the Department's requirements and available resources. The innovative teaming strategy approved by Congress for the construction of *Virginia*-class submarines, advance procurement for future *Virginia*-class submarines, and the next DDG–51 multiyear procurement contract all highlight acquisition strategies aimed at lowering costs, reducing disruptions from hiring and layoff cycles, while level loading employment, and encouraging capital investments. Our shipbuilding plan maintains the LPD–17 program and the auxiliary cargo & ammunition ship (T–AKE) program that will help the auxiliary vessel manufacturers capitalize on past and current program efficiencies.

In addition, the Department's fiscal year 2003 budget plan adds six DDG–51 class destroyers across the FYDP to the procurement profile to sustain the industrial base and future surface combatant force structure during the transition to DD(X) production. These actions constitute the Navy's near-term effort to ensure the long-term ability of the shipbuilding industry to support our future construction programs.

Submarine Force Structure

The fiscal year 2003 budget requests $360 million for the refueling of U.S.S. *Norfolk* (SSN 714) at Portsmouth Naval Shipyard and for advance planning funding for future *Los Angeles*- and *Ohio*-class refueling overhauls and Trident D5 backfits. This refueling overhaul will provide important near-term attack submarine force

structure. *Los Angeles*-class submarine refuelings provides the quickest and most affordable means of fulfilling submarine mission requirements met by fast attack submarines. The Navy's budget submission provides a submarine refueling plan for all but two of the *Los Angeles*-class submarines. Refueling *Los Angeles*-class submarines uses the nominal remaining 15 years in hull life on those submarines that do not have life-of-hull reactors. The Navy is continuing to identify options, which will support refueling the two remaining hulls.

The Navy is equally committed to the conversion of four *Ohio*-class submarines into strike warfare and Special Operational Forces support platforms as transformational SSGN submarines envisioned by the 2001 Quadrennial Defense Review (QDR). When refueled, these ballistic missile submarines will each provide an additional 21 to 23 years of service. When converted to guided missile submarines (SSGNs), these submarines will fulfill Tomahawk land attack missile and Special Operations Forces mission requirements. The fiscal year 2003 budget request also funds the ERO planning for U.S.S. *Michigan* (SSBN 727) and U.S.S. *Georgia* (SSBN 729) to be conducted in fiscal year 2004.

PROGRAMS

Arleigh Burke (DDG–51)-Class Destroyer

The DDG–51 class guided missile destroyer program remains the Navy's largest surface ship program. The fiscal year 2003 budget request includes $2.37 billion for the procurement of two DDG–51-class destroyers. The request adds six additional destroyers to the procurement profile, two additional ships per year in fiscal year 2005 through fiscal year 2007. The addition of the six DDGs addresses three issues: mitigates the industrial base gap between DDG–51 production and DD(X) construction from prior budgets; better stabilizes the surface combatant build rate as we transition to DD(X); and stabilizes future surface combatant force structure by 2012. A new 4 year, fiscal year 2002 through fiscal year 2005, multiyear procurement contract solicitation was recently released. I anticipate a contract will be awarded for these eight ships, plus options, this summer.

The two *Arleigh Burke*-class destroyers procured in fiscal year 2003 will be Flight IIA ships configured with the Baseline 7 Phase I Aegis combat system, which we introduced on the third ship in fiscal year 1998. This baseline incorporates new integrated mission capability and makes these ships more capable in the littoral than any other combatant in the world. The upgrades include the SPY–1D(V) radar system, cooperative engagement capability, the 5″/62 gun and a remote mine hunting system capability. Additionally, the DDG–51 destroyers of the fiscal year 2002 multiyear procurement will be forward fit with Baseline 7 of the Mk 41 vertical launching system, the tactical tomahawk weapons control system and the ability to accommodate the MH–60R helicopter variant.

U.S.S. Ronald Reagan (CVN–76)

The delivery of the ninth ship of the *Nimitz*-class, *Ronald Reagan* (CVN–76), is planned for 2003 at Northrop Grumman—Newport News.

Nuclear-Powered Aircraft Carrier—CVN–77

The CVN–77, the tenth and final ship of the *Nimitz*-class, has a contract delivery date of March 31, 2008, to replace the U.S.S. *Kitty Hawk* (CV 63). CVN–77 remains the future carriers' transition ship to CVN(X). CVN–77 will include a flexible island design that will facilitate warfare system upgrades as needed during the ship's service life. Propulsion plant improvements include centralized electric plant controls and integrated propulsion plant controls. The fiscal year 2003 budget request includes Research, Development, Test, and Evaluation, Navy (RDT&E, N) funding of $92 million to continue the development of the integrated warfare system, incorporating critical transition technologies into CVN–77. Technology demonstration for this effort will be conducted in the new Virginia Advanced Shipbuilding and Carrier Integration Center at Northrop Grumman—Newport News to prove new technologies before installation in the ship.

San Antonio-Class Amphibious Transport Dock Ship—LPD–17

The *San Antonio*-class of amphibious transport dock ships represents a critical element of the Navy and Marine Corps future in amphibious warfare, and is a cornerstone in the Department's strategic plan. The 12 ships of the *San Antonio*-class will functionally replace four classes of amphibious ships. This plan will not only modernize our amphibious forces, but will also result in significant manpower and life cycle cost savings. Despite the challenges confronted in program execution, the Navy remains committed to the vital role the LPD–17 class will play in the 21st century.

The fiscal year 2003 budget request includes $604 million to fully fund the construction of the fifth ship of the class when coupled with advance procurement funds provided in fiscal year 2001 and fiscal year 2002. Only one LPD–17 class ship is requested in the fiscal year 2003 budget, compared to previous plans for two ships. Appropriation requests for the final three ships of the 12-ship class are planned beyond the FYDP. Cost growth and schedule delays caused the Navy to revise the procurement plan to one per year. Current metrics indicate the LPD–17 program team is now performing in a predictable and disciplined manner.

Detail design of the lead ship is completing and fabrication has started on over two-thirds of the lead-ship construction units. LPD–18 construction began in February 2002 and LPD–19 construction commenced last summer.

Last fall, the Navy formally adjusted the contract delivery date for LPD–17 by 14 months (for a total delay of 24 months) to November 2004 and adjusted the contract delivery dates for the other three ships under contract accordingly. Production progress in fabrication, assembly and erection of LPD–17 construction units supports the revised schedule.

We are currently reviewing the efficiency of constructing this relatively small quantity of a single class of ships in two separate yards, essentially supporting two lead ships. In conjunction with our industry partners, we are evaluating whether there are better ways to load our shipyards across the entire spectrum of our shipbuilding efforts to provide greater efficiencies and lower costs.

Amphibious Assault Ship—LHD–8

LHD–8 is a gas turbine powered amphibious assault ship based on the successful LHD–1 class. The gas turbine propulsion with all electric auxiliary systems being included in LHD–8 will result in an estimated total ownership cost savings of $350 million—$420 million for this ship over its 40-year estimated service life. The Navy awarded a contract for detail design of the propulsion plant in July 2000. Procurement of long lead material and advance construction of components as authorized by Congress was awarded in May 2001. The contract for LHD–8 construction is in negotiation for a fiscal year 2002 award. The fiscal year 2003 request includes incremental funding of $253 million toward the total projected LHD–8 program costs of $1.9 billion.

Auxiliary Cargo & Ammunition Ship (T–AKE)

We are replacing the aging ammunition and dry stores ships (T–AEs and T–AFSs) with the T–AKE auxiliary cargo & ammunition ships. The ships that T–AKE will replace are already over 30 years old. The fiscal year 2003 budget request includes $389 million for the fourth ship of this 12-ship class. Last fall, the Navy awarded a contract for T–AKE lead ship detail design and construction. Lead ship delivery is scheduled in fiscal year 2005.

Virginia (SSN–774)-class Attack Submarines

Construction on the *Virginia, Texas, Hawaii,* and *North Carolina* is progressing on schedule. The fiscal year 2003 budget request includes $2.2 billion for the fifth ship and advance procurement for the sixth and seventh ships of the *Virginia*-class. The fifth and follow-on ships will continue to be built under the unique construction-teaming plan approved by Congress in 1998. The teaming plan remains unaltered by the merger of Newport News and Northrop Grumman. This teaming approach provides a cost effective low rate production while maintaining two capable nuclear submarine shipbuilders. The teaming arrangement also helps both shipbuilders achieve level manning and more economic material buys.

The fifth ship is the first of the new contract the Navy is preparing for the next five *Virginia*-class submarines. The Department considered various contracting strategies such as the multiyear procurement and block buy with economic order quantity (EOQ) material purchases, but they were considered unaffordable because of the large, front-loaded budget requirements. The Department continues to assess contracting strategies and may revisit these alternative approaches in future budget submissions.

During the past year, the Department has raised its management focus on three critical issues for *Virginia*-class program execution: identifying the causes for cost growth for submarines under contract, mitigating the effects of these unforeseen cost factors, and ensuring that the fiscal year 2003 budget request fully accounts for all known factors. The execution funding shortfall is primarily the result of the effects of low rate ship production on the shipbuilder and submarine vendor base which was inaccurately budgeted, and were fully realized as the shipbuilders took delivery on much of the ship equipment and material. The cost of these contractor furnished equipment items was much higher than procurement inflation indices and other cost estimating techniques that the Department used to budget for these sub-

marines in 1997. Unbudgeted effects of labor disputes, which occurred after the lead ship was appropriated, contributed to the execution shortfall. Other significant factors included design performance, government furnished equipment cost growth, overhead, and rates. Our fiscal year 2003 budget lays out a funding plan to address the shortfall across the FYDP and covers the immediate funding requirements for the first three submarines. The cost of the fourth ship was addressed in the fiscal year 2002 appropriation.

The *Virginia* program continues to incorporate warfare improvements as a result of past and on-going R&D investments as budget allows. The fiscal year 2003 submarine incorporates shipboard local area network (LAN) improvements, which will improve quality of work and advanced processor builds for the combat system, which will improve warfighting performance and reliability.

U.S.S. Jimmy Carter (SSN–23)

The *Seawolf*-class submarine program has delivered two of her three submarines. The U.S.S. *Seawolf* and U.S.S. *Connecticut* have completed deployments to the Arctic, the North Atlantic and the Mediterranean. The third and final *Seawolf*-class submarine, Pre-Commissioning Unit *Jimmy Carter* (SSN–23), is being modified with additional volume to accommodate advanced technology for naval special warfare, tactical surveillance, and mine warfare operations. The design modification is nearly complete and construction of the new module is on schedule. Overall ship construction is more than 70 percent complete, and delivery is targeted for 2004.

Strategic Sealift

The strategic sealift program is providing 19 large, medium-speed, self-sustaining, roll-on/roll-off ships. These ships provide for strategic sealift of Army unit equipment and supplies from the U.S. mainland for pre-positioning in the vicinity of potential objective areas throughout the world. Two of the three remaining ships of this class will deliver in fiscal year 2002, with the final ship delivering in mid-2003.

Joint Command and Control Ship—JCC(X)

JCC(X) will be the first new afloat command and control capability in over 30 years directly supporting the joint command and control elements of both the operational goals and transformational pillars of the 2001 QDR. It will be built around a robust, advanced C^4ISR mission system that can be tailored to meet specific mission requirements and can rapidly and affordably incorporate new technology necessary to meet the demands of sustained operations at sea. The program entered concept exploration and definition in November 1999. The Navy is evaluating the best course of action based on the analysis presented.

Experimental Destroyer—DD(X)

DD(X), with its transformational technologies, will be the cornerstone for a family of next-generation surface combatants. These combatants must be affordable to produce and less costly to operate. They must be designed from the keel up to enable dramatic, 50–70 percent, manpower reductions. Automated damage control systems will help, as will improved human interfaces and a total-ship computing environment.

Equally important, the next-generation of surface combatants will be designed to reduce signatures across the full spectrum—radio frequency/radar, magnetic, acoustic, and infrared. This reduced signature will have implications for tactics, systems, and self-defense requirements.

As for transformation, no Navy ship currently employs electric drive, though it is becoming common in the commercial world. Electric drive propulsion greatly improves design flexibility—the engine compartments are no longer tied to a mechanical shaft. We can disburse the turbines throughout the ship, improving redundancy, reliability, and survivability. We can also improve efficiency by allowing the crew to match power generation to power consumption. Finally, an integrated power system will enable a new generation of advanced weapons systems and sensors by increasing the amount of power available at any one time.

Many of these technologies were intended to be incorporated into the DD 21 program. However, the DD 21 program allowed very little technical risk reduction though many of the technologies are quite transformational. With DD 21, we were taking a single step to full capability. There was a success-oriented assumption that everything would proceed on schedule and cost. There were limited opportunities for prototyping and no room for error. In the end, these factors resulted in a program at risk of significant cost growth. Thus, DD(X) was formulated to employ a broad range of strategies to make our entire family of next-generation surface combatants more affordable.

To mitigate the high technical risk; the restructured DD(X) program adds several land-based and sea-based prototypes for the key technologies. This provides an excellent means of reducing risk within each area. The Navy will see potential problems earlier in the process, providing us a better chance to solve them. This strategy improves the chances of delivering a functional destroyer within cost and schedule.

Additionally, the Navy plans to produce the lead ship using RDT&E funds. The program manager will be required to demonstrate progress on an annual basis to defend his budget. The Navy can react to problems without the risk of resorting to prior-year completion funding. The program manager can focus on establishing an efficient process for manufacturing the DD(X) class and avoid trading away producibility initiatives when costs increase. Being able to adjust the RDT&E budget for the lead ship provides the best chance to control costs and define a production process that allows the Navy to affordably build the entire class of these next-generation surface combatants.

As you all recognize, construction of the lead ship in RDT&E is a significant change in the Navy's approach to shipbuilding, which the Navy hopes the committee will support.

Using a spiral development approach will allow technologies to be fielded when they are ready through a flight approach, forged to capture cutting edge initiatives. As DD(X) drives the development of technology in many areas, we will look for opportunities to backfit advancements on existing platforms. Carefully focused upgrade and conversion programs will ensure the existing core of surface combatants maintain the capability for battle space dominance.

Littoral Combat Ship

Included in the family of multi-mission surface combatants is the development of a littoral combat ship (LCS). LCS will provide focused-mission warfighting capabilities. We are actively investigating many innovative hull designs that provide both the stability and speed necessary to enable an LCS to be effective in the littorals. LCS will be outfitted with network-centric capabilities, like the multi-mission combatants, to make this ship a combat multiplier. LCS' modular design will provide significant flexibility in both displacement and combat capability. These qualities may make it a good candidate for coordination with the Coast Guard's Deepwater program.

Nuclear-Powered Aircraft Carrier—CVN(X)

CVN(X) 1 is the next step in the evolution of improved aircraft carriers following CVN–77. Specifically, CVN(X) 1 will build on the CVN–77 design and incorporate an improved nuclear propulsion plant, nearly tripling electrical power generation capacity to replace manpower intensive steam auxiliary systems. The combination of a highly automated nuclear plant and the elimination of steam auxiliaries will reduce the manpower and lifecycle costs. Equally important to reducing lifecycle costs are the lower manning and maintenance requirements for the electro-magnetic launching system (EMALS), which will also reduce lifecycle costs on carrier aircraft due to reduced wear and tear.

The next step in this spiral development effort will be CVN(X) 2, which will provide further improvements in flight deck performance, survivability enhancements, service life allowance, and continued reduction in total ownership costs.

In order to support other Navy funding needs and to allow for further technology maturation of CVN(X) systems, the fiscal year 2003 budget submission delays CVN(X) detailed design, construction start, and delivery by 1 year and split funds CVN(X) 1 construction between fiscal year 2007 and fiscal year 2008. The decision to delay the program is not attributable to program execution performance issues.

Following Milestone I, the Navy awarded the first increment of CVN(X) 1 design development work. The fiscal year 2003 budget request provides funding required to support future CVN(X) construction in fiscal year 2007.

Guided Missile Submarine—SSGN

The Navy is committed to the conversion of four *Ohio*-class submarines into strike warfare and Special Operations Forces support platforms as transformational SSGN submarines envisioned by the 2001 QDR. The fiscal year 2003 budget includes over $1 billion in procurement and R&D funding to start the engineering refueling overhauls (EROs) of the first two *Ohio*-class submarines in preparation for their conversion to SSGNs. This also funds attack weapons system design and begins procurement of long lead-time material for all four submarines. We are balancing rapid delivery of this capability with a fiscally responsible, business-like approach and exploring opportunities for public-private partnering.

Amphibious Assault Ship Replacement—LHA(R)

LHA(R) is planned as the next generation large deck amphibious assault ship to replace the aging LHAs. The mission need statement was validated in March 2001 and Milestone A decision reached in July 2001. The analysis of alternatives (AoA) is still in progress and should complete this summer: Options being considered are a repeat LHD, a modified LHD (slightly longer and wider) as well as a totally new design. Following completion of the AoA, Navy will select a preferred alternative and proceed through the acquisition process.

The first LHA will be replaced in approximately fiscal year 2007 by LHD–8. We anticipate replacing the remaining LHAs by 2024. Average age for the 5 ships of the *Tarawa*-class will be 39.2 years at decommissioning (4.2 years average past estimated service life (ESL)).

Ship Modernization and Technology Insertion

While building new platforms for the future is a prime priority, maintaining and modernizing our current platforms enables them to continue to be valuable warfighting assets in the years ahead while concurrently trying to mitigate escalating support costs of aging equipment. As technological cycle times are now shorter than platform service life, it is fiscally prudent and operationally imperative to modernize the force through timely upgrades and technology insertion. In support of this priority, we plan to modernize the *Ticonderoga*-class cruisers, conduct planned maintenance and refueling of our *Nimitz*-class aircraft carriers and extend the service life of our air cushion landing craft. Our technology insertion efforts include the Smartship initiatives and a spectrum of new capabilities for both existing and in-development submarines.

***Ticonderoga* (CG–47) Cruiser Conversion Plan—**The Navy plans to add new mission capabilities and extend the combat system service life of the *Ticonderoga*-class cruisers. The fiscal year 2003 budget request includes $104 million in all procurement accounts to continue the engineering efforts and to procure systems for the first installation in fiscal year 2006. The upgrade of these ships will add new, and enhance existing, combat system capabilities for land attack, cooperative engagement capability, and area air defense commander missions. These new mission capabilities will dramatically improve the ability of these warships to operate in joint and coalition warfare environments. The program is essential to maintaining a mission-relevant force surface combatants.

Aegis Open Architecture—While not quite DD(X) or LCS, one step that sets the stage for the Aegis fleet in the future is the upgrade of the Aegis weapon system into a fully open architecture. Key features of this Baseline upgrade will be:

- Improvements to reduce operator workload and manning;
- Upgraded radar processing; and
- A software architecture that allows for rapid and cost effective commercial off-the-shelf (COTS) technology insertions needed to pace the threat.

This new Aegis baseline will reduce the punitive costs of maintaining multiple baselines across the fleet. The result will be a common Aegis baseline that will carry the Aegis-equipped fleet well into the 21st century.

Landing Craft Air Cushion Service Life Extension (LCAC SLEP) Program—LCAC SLEP continues in fiscal year 2003 through the award of options on the second production contract. The Navy plans to award a second production contract this year with options for up to nine craft over the next 3 fiscal years. LCAC SLEP combines major structural improvements with command, control, communications, computer, and navigation upgrades, while adding 10 years to the service life, extending it to at least 30 years. In fiscal year 2003, LCAC SLEP is funded at $68 million and will extend the service life of three craft. The SLEP is planned for 74 craft.

SUBTECH—The Navy continues to pursue a strategy of increasing the capabilities of the *Virginia*-class submarine force through the insertion of advanced technology into new construction and follow-on ships. The fiscal year 2003 budget request includes $107 million in RDT&E funding for advanced submarine technology development emphasizing capability improvements in sonar and major electrical/mechanical systems. Additionally, the Navy is pursuing R&D in other areas of submarine technology that address a spectrum of new capabilities for existing submarines, planned construction, and future submarine classes. The eighth *Virginia*-class submarine (fiscal year 2006) is targeted to receive a new composite advanced sail, which will provide space and volume for payloads and sensors. Separate efforts are advancing both payloads and sensors under development by two industry consortia for bringing revolutionary and new capabilities to the submarine force for battleforce access, sharing knowledge, projecting stealthy power from the littoral. As

these technologies mature and prove value for submarine enhancement, they will be added to *Virginia*-class submarines.

Both submarine shipbuilders are playing important roles by assisting the Department's efforts to identify additional technologies for insertion opportunities and by identifying design changes that bring a life cycle cost avoidance benefit. Last year the shipbuilders submitted seventeen design improvements for consideration of which eight were approved for further development and evaluation. Forty new technologies are being developed by the submarine community to provide these new capabilities. Two industry consortia, representing over 50 industry partners, are currently working under a Navy agreement to pursue specific areas of future advanced submarine research and development. These efforts are a result of the 1998 Defense Science Board study recommending revolutionary capability advances to the submarine force by harnessing future technologies. In fiscal year 2001, these consortia began working on actual prototype demonstrations of selected technological concepts in an effort to mature the most promising advances for insertion into the submarine force. Fiscal year 2003 should see a continuation and expansion of these demonstrations to further develop technologies needed to provide additional capabilities to the submarine fleet by 2020.

Research & Development (R&D)

Identifying future capabilities for naval forces will require robust experimentation involving systems, platforms, organizations, and tactics. The Department must continually examine and question how we operate in various strategic environments and what the future might entail. Extensive use of simulations, modeling, joint test facilities, and actual forces is necessary to maintain our technical advantage and continual command of the seas. Technology will never substitute for presence; rather, it should always address a mission requirement of making naval forces more effective.

Twenty-first century technology offers enormous opportunities to enhance our warfighting abilities. Emerging technologies must be embraced, both to mitigate risk and to take advantage of new possibilities. Seizing these opportunities at a reasonable cost requires efficient organizational alignment, resolution of difficult interoperability and integration problems, systematic innovation using improved business practices, and the steady pursuit of promising scientific and technological initiatives.

Electric Power for Ships—Specifically, the Department will fund development and at-sea demonstrations of: innovative superconducting and permanent magnet motor technologies for podded propulsors; advanced prime power, including high speed superconducting generators and fuel cells; and electrical auxiliaries such as electromagnetic aircraft launch system for CVN(X).

Littoral Support Craft (LSC(X))—The Navy and Marine Corps will research advanced hull forms, cutting edge propulsion, and material and modular payload technologies for use in a littoral support role. Demonstration efforts are underway on several different vessels, predominantly catamaran designs. The Navy needs to expand this work and look at additional hull designs in order to support our future decisions on LCS.

Future Naval Capabilities (FNCs)—The Navy's science and technology efforts are focused on FNCs, which address many aspects of future shipbuilding. In the areas of sensors, weapons, communications and radar, the Navy continues to make progress transitioning methods and equipment that allow leap-ahead technologies to better fight our ships while protecting our sailors and marines. The Navy is also pursuing many human systems technologies to make the man/machine interface more efficient in order to reduce manning on future ships. To better address the network-centric aspects of future warfighting, the Navy has combined two FNCs to bring hardware and software communities together in a more integrated approach. The most important leap-ahead technology for the future of naval warfare will be electric warship. The Navy is standing up a new FNC to address all aspects of electric warship to include the propulsion, sensors, auxiliaries and weapons.

The Navy's science and technology (S&T) program is focused on 12 FNCs:

1. Autonomous Operations
2. Capable Manpower
3. Electric Ships and Combat Vehicles
4. Knowledge Superiority and Assurance
5. Littoral Anti-submarine Warfare (ASW)
6. Littoral Combat and Power Projection
7. Missile Defense
8. Organic Mine Countermeasures (MCM)
9. Platform Protection

10. Time Critical Strike
11. Total Ownership Cost Reduction
12. Warfighter Protection

The largest near-term beneficiaries of the Navy's S&T program are the DD(X) and CVN(X) programs. S&T investments in electric drive and integrated electric architecture provide the basis for similar "electric ship" technology insertions in future ship programs. Other examples of technology insertions that will benefit future warships include alternative hull forms for high-speed combatants and incorporation of integrated and federated apertures for improved C^4I and signatures performance. The benefits for the 21st century sailor range from improved automation to improved quality of life. The benefits for the 21st century Navy are improved life-cycle costs to improved combat performance.

National Shipbuilding Research Program Advanced Shipbuilding Enterprise (NSRP ASE)

The Navy's NSRP ASE continues in fiscal year 2003, building on previous efforts initiated under DARPA's MARITECH program (1993–1998). Productivity improvements achieved under MARITECH have helped stimulate commercial business opportunities such as construction of crude carriers, cruise ships, and trailer ships at three U.S. shipyards. NSRP ASE is an innovative approach in public/private cooperation involving 11 companies associated with the Navy shipbuilding and repair industry to jointly fund R&D for technologies critical to the Navy's ability to reduce shipbuilding, ship repair, and total ownership costs.

Naval Surface Fires Support

We are executing a two-phase plan to develop new weapons systems, advanced munitions and a naval fires control system to provide improved naval surface fire support (NSFS) capability. These new developments will provide long-range, time critical, accurate, and lethal fires in support of ground forces in amphibious and littoral operations through a combination of advanced guns, precision gun ammunition and precision land attack missiles.

In the first phase, the Navy developed a 5″/62-caliber gun and is currently developing the associated extended range guided munitions (ERGM) to engage targets between 41 and 63 nautical miles. These weapons and the naval fires control system will be installed on 28 new *Arleigh Burke* (DDG–51)-class destroyers and on Baseline 1 and 4 *Ticonderoga*-class cruisers scheduled for modernization beginning in fiscal year 2006.

The Navy was developing the land attack standard missile (LASM) to provide a NSFS capability out to 150 nautical miles. However, LASM development was terminated in the fiscal year 2003 budget request. Even though LASM was on track to meet all its stated program requirements, it would not have provided a lethal capability against all target types, including mobile and hardened targets.

The second phase, to be introduced to the fleet with the DD(X) in fiscal year 2011, is intended to fully meet Marine Corps naval surface gunfire support requirements for range, accuracy, and lethality. It includes developing a longer range, higher volume, larger caliber advanced gun system (AGS), the associated increased lethality long-range land attack projectile (LRLAP) and a long-range, increased lethality advanced land attack missile (ALAM). The AGS and associated magazine will be fully automated and be able to deliver 12 precision-guided LRLAP munitions per minute to ranges up to 100 nautical miles. Congressional support for the DD(X) program is critical to development of the AGS and the LRLAP munition to lower the risk to our ground forces operating inland from the beachhead. Although the Navy's fiscal year 2003 request has no funding for the ALAM program, it provides the last, long-range piece to the NSFS plan. ALAM is intended to deliver various tactical payloads to counter mobile and armored targets at ranges of over 200 nautical miles. The Navy intends to fund the ALAM program in its fiscal year 2004 request. These "second-phase" weapons programs will fully satisfy all Marine Corps fire support requirements for operational maneuver from the sea/ship to objective maneuver.

SUMMARY

We are institutionalizing reforms that make acquisition success a common occurrence. We continue to communicate fully and openly with Congress, industry, our warfighters, and our acquisition professionals, and are doing everything it takes to make sure our sailors and marines are provided with the safest, most dependable, and highest performance equipment available within fiscal constraints. We appreciate the support provided by Congress and look forward to working together with this committee toward a secure future for our Nation. Mr. Chairman, the Navy and

Marine Corps acquisition team is continuing to work very hard to build the best shipbuilding acquisition programs that maximize our current benefits while buying smart for the future.

Senator KENNEDY. Now, this is directed toward both of you. I believe the official requirement for the DDG–51 program is to build a total of 59 ships. In the current shipbuilding plan, you find a total of 64 DDG–51 destroyers or 5 more ships.

This is presumably related to the desire to keep a destroyer industrial base until the DD(X) or some other such ships starts production. The Navy's own destroyer industrial base analysis indicates the industrial base would be at severe risk of production level of two ships per year without substantial additional work.

Based on the lack of prospects for substantial additional work in the two shipyards, it would not appear that the Navy's program could be executed. Further, there is no explicit commitment to build more than the one DD(X) in this budget, nor, indeed, in the Future Years Defense Program.

So this raises several questions. Since the plan would appear to fall short in support of the industrial base, why are we building more DDG–51 destroyers than the requirement?

Then there seems there is no commitment to a continuing DD(X) program. Then what is the bridge on industrial base, and how do we expect to be purchasing these things?

Admiral MULLEN. Sir, I will address the requirement piece specifically. What we have seen in the last 2 to 3 years of warfighting analysis is in just about every war game, there is an increased need for ballistic missile defense-capable ships. Having them there available early is key, and that, to some degree, ties back to the overseas homeport that you were talking about with the previous witness.

Each time we looked at that, the requirement comes in at about 64 DDGs. Now it is in combination with the cruiser conversion program, which is also in the budget; and the need to clearly restore the missile defense program that was cancelled this year, but that warfighting requirement is very real. We see from the standpoint of the overall DDG requirements to have 64 to be about right.

In a previous life, I was the sponsor for DD 21 and what has now evolved to DD(X). There has been over time, a very concerted effort to try to look at how we fare our way both out of DDGs and into the new ship, meeting the new ship requirements, which DD(X) now represents.

In that regard, clearly there have been long-term concerns with respect to the industrial base, and I will actually ask Secretary Young to take the industrial base aspect of this particular question.

Secretary YOUNG. Mr. Chairman, I appreciate the chance to comment on this issue. When I came to the Pentagon, what we had was a program that had DDG purchases through fiscal year 2004, one DD 21 in fiscal year 2005, and three DD 21s in fiscal year 2007.

I would submit to you there is no way the industrial base would survive that profile. The budget has been built and submitted to you in fiscal year 2003 includes two DDGs per year in fiscal years 2005, 2006, and 2007.

I think some of the previous industrial base studies do not consider factors that are ongoing in our industrial base. One factor is the companies have recognized that there may be a period of low rate procurement, and they are working to size their yards for that low rate procurement. So I think those studies are flawed in an element of assuming that the yards have to stay at the same size, and therefore they have to build a certain amount of product to that size.

Senator KENNEDY. That may be true, but I want to see what your studies are, that they show that that is not the case.

Secretary YOUNG. OK. I have familiarized myself with one of the previous studies, it assumes no LPD work is done at Ingalls, and presently, under the Northrop Grumman acquisition of Avondale and Ingalls, LPD work is being done at Ingalls. This is good news, in my view, because Ingalls is bringing skills and manpower to an LPD program that is adding confidence in our ability to deliver that ship.

So I believe the industrial base, that our current shipbuilding profile has the ability to provide enough work to get the yards through this period as we transition to new ships.

Senator KENNEDY. Now, you have studies that show that obviously, and you are going to make those available to us?

Secretary YOUNG. I will make whatever analysis available to the committee.

Senator KENNEDY. You have studies that deal with it, or you would not have done it. I mean, you have something that counters the earlier industrial base studies. Maybe not, but that is just what your earlier answers indicated that those were not——

Secretary YOUNG. I am saying the earlier studies do not countenance the way industry is doing business right now, as well as how——

Senator KENNEDY. OK. So you have other studies that show that the industrial base is not going to be reduced?

Secretary YOUNG. I can—I did not——

Senator KENNEDY. Do you have studies or not? You can just say, "No, we do not, Senator. That is my conclusion." Then we can go on to——

Secretary YOUNG. Senator, I do not have a current study that looks at the industrial base.

Senator KENNEDY. So you do not have studies that override the other studies that have been provided to our committee with regard to what is necessary in terms of industrial base for that? You do not have those. You do not have other kind of studies that sustain your position that you are telling us, but——

Secretary YOUNG. I do not have——

Senator KENNEDY.—you believe that to be the case, but you do not have that.

Secretary YOUNG. I do not have new studies, but I definitely have assumptions, and the original studies have changed the way we are doing business now, sir.

Senator KENNEDY. Yes. But you can provide that, any information on this. We are very concerned about the industrial base. This decision and the DDG is going to be the best ship in terms of the missile defense; that decision has been made or——

Admiral MULLEN. Sir, the program that was cancelled, the area theater ballistic missile defense program, which was cancelled prior to this budget cycle, is a capability that—again, the warfighting requirement remains out there.

The plan at that time, at the time of cancellation, was to embed this in the DDGs, which is what I spoke to in my opening remarks, that that warfighting requirement is still there, and as Admiral Blair testified last week, needs to be met.

If I could, Senator, I would like to address the DD(X) issue, if I may?

Senator KENNEDY. Admiral, please.

Admiral MULLEN. As the resource individual in the Navy, one of the things we did in this budget was we put an additional six DDGs in the last 3 years of the future program, specifically to reserve the option of DD(X) maturing and then moving that money from DDGs into the DD(X) as it matures.

From a long-term warfighting requirement, the DD(X) program is a very important one to us, not just specifically for that platform, but also for the littoral combat ship and for incepting the technology evolution to the follow-on cruiser.

Secretary YOUNG. Could I add to that, Senator? I was going to comment——

Senator KENNEDY. When would you expect to be replicating your building after that? The DD(X) will be completed then—when?

Admiral MULLEN. It is due to hit the waves in fiscal year 2011. It is currently a 2005 ship. So certainly my expectation would be that between that time frame, we would be turning to the production of additional ships, and actually Secretary Young can speak on that.

Senator KENNEDY. How many years, between 5 and 11?

Secretary YOUNG. Senator, the understanding I——

Senator KENNEDY. I am just trying to find out what your plans are with regard to industrial base now and also with regards to the whole issue of the extended range guided munition that is so important to the Marines. That has been a surface fire support program that has slipped with this decision on the DD(X). So that has slipped as well. So we just want to get a good idea as to what is being planned out there. I will send you a more precise, entire question and more specifics, because I am getting around the edges here, I think. I want to make sure we have a complete answer.

Secretary YOUNG. Yes, sir.

Senator KENNEDY. Senator Reed. Or John, do you want to——

Senator WARNER. No, I think I will follow the regular order.

Senator KENNEDY. All right.

Senator WARNER. Thank you very much, though, for the offer.

Senator KENNEDY. All right.

Senator WARNER. I will follow you, Senator.

Senator REED. Thank you.

Mr. Secretary, Admiral Mullen, thank you.

As I understand it, the Navy plans for an accelerated development of the Navy's unmanned underwater vehicle program, specifically the Navy plans to accelerate the multi-mission reconfigurable UUV and upgrade the AN/BLQ–11 long-term mine reconnaissance system.

Can you elaborate in some details about these plans, because they are, I think, very important for the future in terms of employing more and more unmanned undersea vehicles.

Admiral MULLEN. Certainly, the future of warfighting is we view as a very critical piece to us is the entire spectrum of unmanned and autonomous remote vehicles, in the air, on the surface, and under the sea.

I am not intimately familiar with this program. I know it has been in development for some time, and there is a very strong Navy commitment to this program. As far as the details of acceleration, I would have to take that for the record and get back to you specifically. But I want to strongly state the Navy's commitment to this kind of capability in the future.

[The information referred to follows:]

The Navy has plans to upgrade the baseline AN/BLQ–11 long-term mine reconnaissance system (LMRS) with improvements to the forward-looking sonar and the side-looking sonar. The improvements to these sensors are currently under development and will be transitioned to LMRS upon successful demonstration.

The 21″ variant of the mission reconfigurable UUV (MRUUV) is the next generation, fully autonomous UUV. Current funding dictates an initial operational capability (IOC) in fiscal year 2009. Both the Office of Naval Research and industry are conducting UUV research and development efforts that can be leveraged to delivery MRUUV prior to fiscal year 2009. The milestone is being evaluated against other priorities within the Navy as part of POM04.

Senator REED. Are you aware of any collaboration with the Coast Guard in homeland defense in terms of using unmanned underwater vehicles for port surveillance and port security? Is that something that you would be considering also, Admiral?

Admiral MULLEN. I am not aware of that, Senator Reed, at this point. But one of the things that happened September 11th, Admiral Loy is fond of saying, the second call he got was from Admiral Clark. It has really energized both services in working together to support the future and the changing mission of homeland security and homeland defense.

So we are paying a lot of attention to the Coast Guard developments. One possibility is to look at the development for the littoral combat ship and the Coast Guard deepwater program and how they will work together.

Certainly, initiatives like you are talking about would be ones that, if they have applicability, and certainly it sounds like they do, we would want to try to participate in it.

Secretary YOUNG. Senator, we are working on a memorandum of understanding between, particularly, the LCS, DD(X), CG(X) programs and the deepwater, and as the Admiral said, the LCS is one of the first potential opportunities for cooperation, depending on whether it has a place in deepwater.

Then we are looking to expand that into exactly what you said, both not only underwater vehicles, but also communications and sharing data, tracking ships, and other factors.

Senator REED. Thank you, Mr. Secretary. Mr. Secretary, it is my understanding that the first step in converting the SSGNs is for refueling, and this work will be done in public yards at Puget Sound and Norfolk.

Has a decision been made on whether conversions will also take place at—well, let me ask it this way. After the refueling is com-

pleted, will these ships be moved to other positions for the construction and the renovation, if that is the right term?

Secretary YOUNG. There has been extensive discussion in the Department about that. The current plan and the program of record would be to refuel two submarines at Puget and convert those submarines there and refuel two submarines at Norfolk.

We have staggered the two submarines at Norfolk and preserved an opportunity to discuss where those submarines are converted, whether there might be a public or private competition for that and other factors.

There is also a strategy to try to take Electric Boat tiger teams and assign them to the submarines. The staggering is an approach to let that tiger team move between each conversion and give ourselves a chance to have some learning curve benefit and to control, to the maximum extent possible, the costs on the SSGN conversions.

Senator REED. Thank you Mr. Secretary, this also raises the question that is asked every year. We have been struggling to meet the requirements of the warfighters, to have a sufficiently sized submarine fleet, and that ultimately requires going to two-submarines-a-year production.

Can you comment about whether the horizon is within sight, that we will get to two submarines a year?

Secretary YOUNG. Senator, you are well aware, in the fiscal year 2003 budget, the Navy made an effort to add 688 refuelings to try to sustain forces at the 55 submarine requirement.

The President's budget supports the potential for three submarines in 2008. Those programs are continually under review again with my comments about "What is the business-smart way to do that?"

But there is a goal to get to two submarines per year, and people would like to get there as quickly as possible if resources and the business plans allow that.

Senator REED. Mr. Secretary, if I may ask one question. In your statement, you talk about the ways you are going to try to more accurately project and control costs in fulfilling the program, and then you have a line that says, "If costs continue to rise in spite of these management efforts, the Department is prepared to descope or delay capability to maintain a funded executable program."

Can you elaborate in more detail about what precisely that means?

Secretary YOUNG. OK. The prior completion account has grown. This year, the request is $646 million. That is critical to the Navy. If we are not provided those funds, we will have to take scope out of other programs. It will not necessarily have to be in shipbuilding. It relates to the comment I made in my opening statement about making trades with the whole of the picture in mind.

So if a ship cost grows, and if there is a change option and we do not have a way to pay for it, I think we will try to resist making that change until a future point when we have the funds and know what capability we would put on board.

I think a perfect example of that is CVN–77. There was an option: MFR and VSR. The VSR became a high-risk, if not impos-

sible, option for CVN–77. The next option down was potentially to put a SPY–1 radar on the carrier. There were estimates that said the cost of that were over $300 million, and that would have been a prior year completion bill for that carrier.

Right now, we are going to put the legacy radars on that carrier, design the island in a smart flexible forward-looking manner so that in a future availability, or a next opportunity, we can install MFR and VSR on that carrier. But we cannot afford either the costs or the risks to put that on right now. So some would argue that is a good business decision, and some would argue that is descoped capability.

Senator REED. Thank you, Mr. Secretary.

Thank you, Admiral.

Secretary YOUNG. Thank you.

Senator KENNEDY. Senator Warner.

Senator WARNER. Thank you, Mr. Chairman.

Gentlemen, welcome.

Admiral MULLEN. Good to see you, sir.

Senator WARNER. I am fascinated to hear you talk about your respective responsibilities with such enthusiasm. Not much has changed since I had the same challenge that you have.

Managing the shipbuilding account for the United States Navy is one of the most difficult jobs. We are fortunate, Mr. Young, that you bring an institutional memory of this institution as we go through our deliberations here. I think you have a profound respect for the old adage that the President proposes and Congress disposes and I am going to come to that momentarily.

Admiral Mullen, I judge that your career is owing to three things: hard work, solid family, good luck—and maybe the fourth one is Joe Lopez, is that correct, Admiral Lopez? [Laughter.]

Admiral MULLEN. Well, he does stay in touch. [Laughter.]

Senator WARNER. He is a wonderful man.

Admiral MULLEN. Yes, sir.

Senator WARNER. This morning, our committee was briefed by the Director of the Central Intelligence Agency. I think by any objective viewpoint, this country is heading into some very uncertain waters in the years ahead. As I reflect on the threats that our previous witness talked about with respect to a capability versus threat-based environment, some of us old-timers are still very conscious of this threat and have to determine what you mean by "capability-based."

Nevertheless, one capability that we have relied on, I think, more heavily than ever before is the carrier force. We saw that in the Afghanistan operations, where you actually loaned out one of your carriers to the Army as an airfield, which served very well in its mission.

As you look to the future and at the uncertainties of the future, I frankly can see absolutely no basis for anyone to say that the carrier is not going to remain, if not increase, in its importance in terms of not only protecting our forces, but also deterring conflict.

Of course, this brings me to the decision on the CVN(X). I am going to read from your testimony. You say, "In order to support other Navy funding needs and to allow for further technology maturation of CVN(X) systems, the fiscal year 2003 budget submission

delays CVN(X) detailed design, construction start, and delivery by 1 year and split funds CVN(X)–1 construction between fiscal year 2007 and fiscal year 2008. The decision to delay the program is not attributable to program execution performance issues."

Now, with all due respect, I am seriously reviewing, initially with this subcommittee and then to the full committee, a restoration of funds so that that program can be restored to its original posture in previous FYDPs.

I am going to frankly ask you if Congress were to authorize and approve a dollar amount, and we could possibly discuss that, such that you could then execute, which is the will of Congress; can you do it, and how would it be done?

We will start with you, Mr. Young.

Secretary YOUNG. Yes, sir.

Senator WARNER. You are quite familiar with the process here.

Secretary YOUNG. Yes, sir. I appreciate your kind comments, Senator, and on this one, I think I can answer you fairly specifically.

The current program in fiscal year 2002 assumed that we would hire approximately 50 designers and engineers a month, starting in January and do so each month thereafter and maintain that engineering work force as we built up to be able to accomplish the design of CVN(X).

When the fiscal year 2003 budget decision was made, the budget before you, is for a year and decreases some of the engineering of the R&D funds for the design of that carrier. The program office looked at what they had in fiscal year 2003 and recognized that if they ramped up as planned, they would potentially, with the fiscal year 2002 funding, have to ramp down.

Senator WARNER. Well, presumably Congress would find the dollars.

Secretary YOUNG. Yes, sir.

Senator WARNER. So I ask you to start with the assumption that it is not a dollar issue, because Congress would add those funds from wherever we so desire.

Secretary YOUNG. It is——

Senator WARNER. So then take it back again to what you can do if you have been authorized those funds.

Secretary YOUNG. I probably would have to seek a middle ground. I can tell you that there is a number that, if additional funds were authorized and appropriated in fiscal year 2003——

Senator WARNER. For this purpose.

Secretary YOUNG.—for this purpose, the carrier, they could attempt to recover——

Senator WARNER. Who is "they"?

Secretary YOUNG. The program office. Admiral Knapp and the program office.

Senator WARNER. All right. I want to be specific.

Secretary YOUNG. Yes, sir. They could try to recover some of the lost schedule in the program. I am told there is an estimate that says the carrier right now would deliver under the program of record, with the budget as submitted, in September 2014 and that could be pulled back to March, with the addition of funds in fiscal year 2003 and each following year.

Whether that carrier could be pulled back a little further, if people assumed additional funds authorized and appropriated, there might be even more acceleration potential.

But right now the program office is taking a business-like approach. I think you can understand. They do not want to hire people and then, if no additional funds are authorized and appropriated, have to lay those people off. That is a spike they do not want to manage.

They are managing to the assumption that there may be only the President's budget level of fiscal year 2003 funds; if there are additional funds in fiscal year 2003 provided, there is that potential to pull the carrier back.

Senator WARNER. Now, let us go to the phrase "maturation of systems," which means maturity as they come along and can be integrated contemporaneous with the maturing of that system. Address that issue, because I think somehow we can work the labor force issue, or the hiring, and the money, but I want to talk about that aspect of it.

Secretary YOUNG. Sir, the reactor components have already been advance appropriated. Therefore, there is a certain level of maturity, in the propulsion system of the carrier. We do need work on the EMALS, the electromagnetic aircraft launch system, and other technologies. But that is affected by this desire not to spike and then layoff people; I think it is, as much as anything, a money-driven process.

Time will help us with that maturity and it will put less risk in the program, because we would like to see EMALS launch a plane today and you cannot do that. So adding funds and pulling it back will put back some risk in the program, but I cannot tell you it is an unacceptable level of risk.

Senator WARNER. From a technical standpoint?

Secretary YOUNG. Yes, sir.

Senator WARNER. Thank you.

Admiral, your views on this and particularly, as a future fleet commander, or whatever the case may be in the years to come, suddenly you are short a carrier out in this time frame of when this was to be delivered. We saw this with the *Kennedy*.

Admiral MULLEN. Yes, sir, Senator Warner.

Senator WARNER. It was for reasons other than this, but the carrier schedule is just as precise as any schedule there is that exists in the Pentagon.

Admiral MULLEN. Actually, I would say it is probably more so than schedules that exist in the Pentagon, from the standpoint that carrier schedules really drive everything else in the Navy and have for many years. Certainly, this choice, as has been testified to by Admiral Clark, was an affordability issue more than anything else.

Senator WARNER. I examined Clark in detail.

Admiral MULLEN. Yes, sir.

Senator WARNER. What I am asking you is, on the assumption that Congress does restore funds to enable the Navy to go back to try and recoup some of this time and also, a subsidiary question, the work force, can you do it and will you do it?

Admiral MULLEN. In terms of if it can be executed, we certainly would accept the carrier back in 2013 rather than 2014. We seem

to be at, as well as we can predict, March 2014 right now. It is that other 6 months that gets it back to its original schedule that Secretary Young was speaking about specifically.

The value of the carriers. My last job was down in Norfolk as the fleet commander. Certainly from there as I watched the debate last year about the value of carriers. It was fairly vocal on both sides, but has certainly gone away, as it should have in my view, because of the value of these particular platforms.

It is clearly something we will watch very carefully and want to manage and have as much of that capability as we possibly can.

The other option we have on the front end of this—given the time between now and that the CVN(X) is basically supposed to replace the *Enterprise*—is to carefully manage her nuclear fuel. Basically, the driver for her is the nuclear fuel that she has.

We cannot always do that because of the needs and she may have to go faster than we anticipated at certain times. But we have the opportunity to manage that on the front end, as well as to try to make this work.

Senator WARNER. Now, she has four reactors, by the way?

Admiral MULLEN. Yes, sir.

Senator WARNER. That is quite a program.

Admiral MULLEN. Yes, sir.

Senator WARNER. Mr. Chairman, if I could just add one other point here.

Senator KENNEDY. Yes.

Senator WARNER. I was fascinated with how you worked out a sharing of the labor force with Newport News and the Norfolk Naval Shipyard because of workload in the Newport News Shipyard you took the carrier, and put it into Portsmouth under an arrangement where that work force could work on it. Yet it is still, let us say, under the command of Newport News Shipbuilding. Now, that is quite an interesting innovation to balance that work force.

Is that something we will likely see in the future, and is it working to your satisfaction?

Secretary YOUNG. Do you want me to comment?

Senator WARNER. Either one.

Secretary YOUNG. Go on.

Admiral MULLEN. Yes, sir. I think from the standpoint of the critical requirement to have that capability within our country and in particular, the specific skills tied to the nuclear industry, that kind of innovation and work-sharing piece is a very important part of both our current capability and our ability to maintain that capability in the future. Yes, sir.

Secretary YOUNG. If I could, sir, we would like to take advantage of that at every opportunity possible. As you well know better than I, Norfolk Naval Shipyard has some very unique facilities.

Senator WARNER. Indeed it does.

Secretary YOUNG. We are able to let the private sector come in and perform work on ships within dry docks that nobody else has in the world. At every opportunity where it makes sense from a labor cost and an overall cost to the project point of view, we are trying to take advantage of those opportunities.

Senator WARNER. I think it is, and perhaps it even lends itself to the creation of more jobs between the two yards, given that.

By the way, the record should reflect port, starboard, fore, aft, four reactors. Fore, aft, port, starboard, eight total, correct?

Admiral MULLEN. Yes, sir.

Senator WARNER. Thank you.

Thank you, Mr. Chairman.

Senator KENNEDY. I am glad we got that straightened out.

Senator WARNER. Yes, sir, I am too. [Laughter.]

Particularly when it comes to the Navy and their terms. [Laughter.]

Admiral MULLEN. I knew what you meant, Senator. [Laughter.]

Senator KENNEDY. To my friend and colleague, Senator Sessions, if I may.

Senator SESSIONS. Of course.

Senator KENNEDY. In February, during the posture hearing, Secretary Rumsfeld talked about the naval forces study. Could you give us an idea of when that is going to be ready?

I do not know whether that this is out of the blue, and you did not know you were going to get asked that. So if you want to, you can provide it for the record. But if you can let us know either way.

Secretary YOUNG. Secretary Aldridge was asked this question at a previous hearing, and he has indicated within the next couple of months they will try to provide the results of that study.

Admiral MULLEN. We, in the Navy, are participating in that.

Senator KENNEDY. Is this going to be before we mark up the authorization bill? It would be worthwhile to have that prior to the time of the authorization, it seems to me, just in terms of our own information.

I know, as the Chairman, if we can get that in a timely way, I think it would be very helpful at least for our committee. Hopefully, we can.

Admiral MULLEN. Yes, sir.

Senator KENNEDY. Senator Sessions. Thank you.

Senator SESSIONS [presiding]. Secretary Young, can you tell us what the answer is to the $48 billion increase in spending for defense, and how it is that the Navy shipbuilding is sliding? What are the factors?

I know some of them, but just for the record, what would you tell an American citizen who might ask that question?

Secretary YOUNG. Can I take a couple of minutes to do that, sir?

Senator SESSIONS. Please.

Secretary YOUNG. From the start, I would tell you, the Secretary likes to say, we went through with the monies that were made available and filled up the pots, and the pots that were placed in order were——

Senator SESSIONS. First, let me ask you: The Navy budget, how much did it go up?

Secretary YOUNG. I understand it went up about $9 billion, $9 billion of the $48 billion.

So the Secretary talks about filling up the pots and they were in priority order, the manpower pot to pay our people, the readiness pot to train people, provide spares for them and have the equipment ready to perform. We had health bills that we had to pay.

In fact, I could be fairly specific. There was $4 billion of the increase that went to the Navy that was asked for military personnel salary, health, sea pay, housing allowances; $3.4 billion went into steaming hours, flying hours and spares; $1 billion went into munitions; and then, about $1.1 billion went into RDT&E, which would include increases for programs like the joint strike fighter and DD(X).

So when we filled all those pots with the monies were given us, we did everything we could with the monies that were available, and we certainly could have used more. So then the question becomes, "Okay. Why did you not buy ships?" The answer is, "We certainly would have liked to have bought ships."

But let me add some detail to that, and I am going to start back a little on the history here. A couple of years ago, two LPDs were requested and they were taken out, because the program was not mature enough in people's view to fully fund the program.

Last year, fortunately, we did get full appropriation for our T–AKE, but there was a chance we would lose a T–AKE. The picture I am painting to you is: we have to think about what can be authorized and appropriated in Congress and we can reasonably request.

We have four LPDs fully funded right now and advanced procurement for two more. We have four *Virginia*-class submarines fully funded in advanced procurement. We have three T–AKEs funded.

Each of these, Senator, are new classes of ships. So we are transitioning from older production to new production classes, and we are struggling, as I said in the beginning, to try to build our confidence and your confidence in our ability to deliver those ships.

In each of those cases, I think it would be premature to have made the first priority to increase the rates in those programs in fiscal year 2003. That is not the case in fiscal year 2004 and out. As Admiral Mullen testified, we will be working aggressively in the fiscal year 2004 program budget development process with the programs that we now have more confidence in and can come to you and tell you we can deliver, to look at increasing those quantities.

But it seemed incumbent on us to build your confidence in the programs we have now. We do have ships in the pipeline in these new programs, and we just have to deliver them to you.

But in fiscal year 2004 and out, I hope we will be testifying that we have great confidence in LPD, *Virginia*-class, and T–AKE, and I hope we will bring you a program that has additional ships.

Senator SESSIONS. When you look at about 300 or so requests, you wanted to do 8.9 a year. That is the QDR number, right?

Secretary YOUNG. Yes, sir.

Senator SESSIONS. So we were at six last year; six this year; five, 2003; five, 2004; seven, 2005; seven, 2006. Is that about right?

Secretary YOUNG. Yes, sir.

Senator SESSIONS. So, Admiral Mullen, I guess you have had to deal with balancing these issues, too. Do you have any thoughts about where we are? Are we making the right decisions on this budget? If you were given more money, in your view, should it go to increasing the number of the ships, or do you have other readi-

ness or research and development issues that would still take priority over ships?

Admiral MULLEN. I would like to take just a second to commend Secretaries England and Young. I have been working with both now for the last half year. I have been in and out the shipbuilding business, coming out of the building since 1995, and I really do applaud the business approach that Secretary Young and Secretary England have taken to try to get this right, because we have sometimes bit off more than we can chew.

We need the ships. There is no question about that. The indication, as I specifically testified, is I am working very hard in the 2004 budget right now to find a way to come over here with more ships.

That said, both the Secretary and the CNO have stated that their first dollar would both go to aircraft or airplanes; and the next dollar after that would go to ships.

I do not want to draw too thick a line through those two, because both of those are required for us to recapitalize the Navy. So the efforts that are ongoing right now are to find funds to commit to both of those procurement accounts, so that we can get well above what we are right now.

Senator Landrieu stated earlier that things always seem to be brighter in the outyears, and so I do understand that. I do not want to be Pollyannaish about what is available to us in the outyears. I just want to restate my commitment to work very hard in the 2004 budget to make sure that we have the direction headed that we are going up, and then we do not show up over here a year from now talking to you about five ships.

Senator SESSIONS. Secretary Young, I believe the CNO indicated at a previous hearing that he was having to pay down some carryover expenses, such as air time and training time that were not made part of the fiscal year budget that should have been. Therefore, it was behind and there were other factors. Is that something that you are going to? Does this budget end that?

Are we going to be able to pay, in this year's time frame, our training and other obligations and not to carry that over as an obligation in the future? If we were paying that off, I believe he said in the next 2 years, will that not free up some money for our budget as intended?

Secretary YOUNG. I think Secretary England has shared the CNO's view, and I think Admiral Mullen would like to comment on this.

The thing I would tell you is, once you agree to sustain a force at a level, and you have decided it requires a certain amount of funds in terms of personnel, pay, flying hours, training hours, and spares that you do not buy it and then take a holiday on that.

We are undertaking a review of our programs and processes, and I have asked all the SYSCOMs to take a hard look at what we are doing now that maybe we do not need to do. How can we do business more smartly? I think we need to find ways to save money within our resources and within our programs to try to enable what Admiral Mullen is talking about, which is buy airplanes and ships.

I do not know what we will find, but we will look for savings in the training budget and other segments of the budget to try to do things smarter everywhere, not just in acquisition.

Senator SESSIONS. Well, the simulators have some potential for saving, do they not——

Admiral MULLEN. Yes, sir.

Senator SESSIONS. —both in ships and aircraft?

Admiral MULLEN. Correct.

Senator SESSIONS. Secretary Young, there appears to be ships ready to buy. Your unfunded priority list indicates there are ship programs to buy, a DDG–51, plus *Virginia*-class advance procurement, and you delayed the CVN(X) due to funding. So do you not have ships that do require more funding for 2003?

Secretary YOUNG. Yes, sir. Secretary England has testified that one of his high priorities, if additional funds were made available, would be to buy an additional DDG. We have worked hard to put at least some advanced procurement with the advanced procurement that Congress provided in fiscal year 2002 towards a third DDG in 2003, if you will. So that is his highest priority.

Then likewise as I mentioned to you, I think our confidence in LPD–17 and in *Virginia*-class is going up substantially. Could those programs—I cannot tell you—I can just tell you that our confidence is getting to the level that they will be part of our discussion in the fiscal year 2004 budget bill, whether we need to go back and look at two a year, particularly in LPD–17, which replaces ships that are 35-plus years old.

Senator SESSIONS. Let me just ask and see if your answer to this is yes and if you have a figure, that would be fine. If we were to contract, with absolute brilliance and good foresight, and knew what we wanted to buy and set about to buy that, and we bought it and bid it, over our sustained building program, could we get more ships for less money? Could we get more bang for our buck than we are? Or are we still losing money because of up and down spending, delayed contracts, not following through on things, and those kinds of things?

Secretary YOUNG. I think there are a couple of cases where that is true, and we are working to change some of that.

Senator SESSIONS. Would you say that it has cost us more as a result of delays?

Secretary YOUNG. There is no question LPD–17 would have to lead the list, sir. I regret that your colleagues are not here, but in that case, it has been discussed in the media and we are talking to the companies. If everybody can agree, we will work hard to create a situation where we build all the LPDs at Avondale and Ingalls; and in exchange for the four LPDs: two that are known right now, i.e, within the current program that move south, if you will, two DDGs will move north.

We will still have both yards, Ingalls and Bath, build DDGs, but we will offset the loss of LPD work at Bath with DDG work. I think it is more efficient to build 12 ships when you have a small class at a single yard.

Right now, we are in the process, because of the delays in LPD–17, of essentially building two lead ships, LPD–17 in the south and LPD–19 in the north, if you will.

There are significant inefficiencies in that class of ships, and if the companies can agree this is a reasonable business proposition for them, I hope we will reach this agreement.

Senator SESSIONS. Well, ideally we should be able to plan those things out and get a kind of quantity order that can get us the cheapest buy on the product possible. Let me mention one more thing, and that is our precision-guided munitions.

I believe we have learned one thing and that is the older platform with a superior munition is probably superior to a more modern platform with an old outdated munition. Would you agree with that?

Secretary YOUNG. Absolutely.

Admiral MULLEN. Yes, sir.

Senator SESSIONS. The fact that you got $1 billion extra for precision-guided munitions gives me some comfort, but is that enough to keep you where you think you need to be in precision-guided munitions?

We do not want to be in an Afghanistan-type conflict that is more sustained and has more targets; they do not even have targets in Afghanistan. We really need a lot of precision, and we do not have enough. To what extent is the Navy responsible for purchasing in your budget? Whose budget supplies most of these?

Admiral MULLEN. We recognize this as a serious deficiency in the previous budgets, and we have taken a significant round turn in that investment with respect to the future. We have been well-supported by you and your colleagues here on the Hill with respect to the emergency funds, with respect to the war.

It is known fairly widely and publicly that we did not have all the munitions we wanted when this started. We have committed in the budget—and it is back to the very painful choices we had to make that included the current readiness, in which we have actually purchased a significant increased quantity of precision munitions, in particular laser guided bombs and JDAMs, as well as Tomahawks, which are the three leading munitions right now that we need to make sure our magazines are full.

That includes ramp-ups at the contractors, investments to do that, to get to a maximum production capability, that tied to your shipbuilding question earlier, will get us the best price for each one of those units. We are on the other end of that spectrum.

Senator SESSIONS. Let me just ask you. These older ships are properly equipped and can project our forces exceedingly well. Would that not be a cost effective way to help get our numbers up, through using the most sophisticated weaponry even if we have to use an older platform?

Admiral MULLEN. Yes sir, and I think this speaks to the decision in this budget to decommission the 963s, and you had talked about your time on *O'Brien*, which you were impressed, and rightfully so.

Clearly, that was a trade we made to take some near-term risk in terms of being able to garner about $1.5 billion in the DD–963 program, people and program, and invest that in the future, in the kinds of future ships that we need to invest. That was an internal decision to accept risk there. The specific capability——

Senator SESSIONS. Sure, but was that an attempt to do what the President suggested, leap a generation? Are you taking a chance to leap forward?

Admiral MULLEN. Clearly, into the——

Senator SESSIONS. But is it a good risk?

Admiral MULLEN. I think it is a good risk, yes, sir, into not just DD(X), but also the littoral combat ship and the technology and the real warfighting mission needs we have in anti-submarine warfare, mine warfare, and surface warfare that that ship will provide.

Additionally, the precision capability that the 963s can also be provided by many other ships. The trade, very specifically, is about the same number of vertical launch cells or Tomahawk cells for the SSGN investment as we bring those online towards the end of FYDP, and the *Spruances* are retired. But the *Spruances* have become a very expensive platform for us to operate.

Senator SESSIONS. I have some questions along those lines that I would like to submit to you.

Admiral MULLEN. Sure.

Senator SESSIONS. We thank you very much for your candid and thoughtful comments. There are no easy answers; there is no free lunch.

Any initiative you take when you have a limited number of dollars means some other initiative did not get advanced like perhaps its defenders would like.

We are trying to ask, Senator Kennedy and I are, two things: can we build more ships, and how can we find the money to do so? Can we avoid inclining our numbers to at least some degree through forward deployment, through keeping all the ships? Maybe there is a skeletal troop situation on the forward deployed ships that we could have people back home with their families, but if a crisis occurred, they could be immediately moved out to move forward.

I just think you are apparently making some rather historic efforts to evaluate those kinds of possibilities, which I would support, and, I believe, Senator Kennedy supports.

So thank you for your service. Thank you for the effective way you have helped us be successful in Afghanistan.

Do you have anything that you would like to add for the record or otherwise at this point?

Admiral MULLEN. No, sir.

Secretary YOUNG. No, sir.

Senator SESSIONS. All right. There are no other questions and no other members here, so we are adjourned.

Admiral MULLEN. Thank you, sir.

Secretary YOUNG. Thank you very much.

Senator SESSIONS. Thank you.

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR EDWARD M. KENNEDY

CARRIER HOMEPORTING

1. Senator KENNEDY. Admiral Wachendorf, the Navy has said that the Navy has to have 7.6 aircraft carriers in the active fleet in order to support one carrier on station full-time in the Northern Arabian Sea. This reflects assumptions about keeping the CNO-mandated operational tempo goals and maintenance down times, among others. The Navy also indicates that having the carrier homeported in Japan

allows the Navy to have only 1.7 carriers in the active fleet provide a continuous presence of one carrier in the Western Pacific.

In your discussion of the forward homeporting options, you discussed a number of vessels such as submarines and other support ships in Guam. However, you made no mention of re-looking at options to homeporting carrier battle groups in locations other than the current group in Japan, other than to say, "There are numerous ports throughout the region that have the capability/infrastructure to conduct port calls, but the required infrastructure to support the permanent homeporting is not available and would require substantial investment by the U.S. and the host nation." Could you give us some estimates of the costs that would be required to establish the appropriate infrastructure?

Admiral WACHENDORF. Initial estimates for building the required port facilities and supporting infrastructure to homeport a CVBG, with an air wing assigned, in Guam would cost approximately $3 billion.

2. Senator KENNEDY. Admiral Wachendorf, how recent are these estimates?

Admiral WACHENDORF. These estimates were developed in September 2001.

3. Senator KENNEDY. Admiral Wachendorf, how would these costs compare with the costs of the number of carrier battle groups that would have to be maintained in the inventory to provide equivalent forward presence?

Admiral WACHENDORF. It would take three to five times the number of carrier battle groups based on the west coast and Hawaii to provide the same presence and crisis response capability as is currently provided by the forward deployed naval forces (FNDF) in Japan. The procurement cost of one CVN alone exceeds the initial cost estimates for homeporting a CVBG and air wing in Guam.

DD–963 WARFIGHTING CAPABILITY AND RETIREMENT

4. Senator KENNEDY. Admiral Wachendorf, your statement would appear to minimize the contribution of the DD–963. You said in the prepared statement that the DD–963 "provides only marginal warfighting capability due to the ship's older and more focused mission combat system." These destroyers have been providing a significant contribution to the Navy's ability to maintain the required number of Tomahawk missiles in theaters to support requirements of the theater commanders in chief under the global naval force presence policy (GNFPP). In fact, I believe that several DD–963s just returned from operations in the Afghanistan operations, having fired a number of Tomahawk missiles against priority targets. Since there is no chance that the Navy will have additional Tomahawk missile carrying capability in the near-term, isn't this action going to complicate the Navy's ability to maintain the required number of Tomahawk missiles in theaters to support requirements of the theater commanders in chief under the Global Naval Force Presence Policy?

Admiral WACHENDORF. The DD–963 class destroyers are contributors to both our current operations and the GNFPP. DD–963 class ships do not have the flexibility that the newer *Arleiqh Burke*-class DDGs have, but DD–963 class ships will continue to deploy, carry Tomahawk missiles and be counted in the GNFPP. The DD–963 class ships will continue to be major contributors to our operations until decommissioned. With the decommissioning of the DD–963-class ships, the Tomahawk missile requirements in the GNFPP will be carried out, by the more flexible and newer *Burke*-class DDGs as well as cruisers and submarines. The Navy will be able to maintain requisite quantities of Tomahawk missiles in theater to support the requirements of the theater commanders in chief under the GNFPP, given the current DD–963 decommissioning schedule. The Navy is commissioning new DDG–51 class destroyers through the FYDP. These ships have launcher capacities of 96 Tomahawk-capable, vertical launch cells, as opposed to the 61-cell capacity of the DD–963 class ships. The current DDG–51 program of record commissions five ships in fiscal year 2003, three in fiscal year 2004, four in fiscal year 2005, and two in fiscal year 2006, for a net gain of 1,344 launcher cells by the end of 2006. This schedule produces a yearly net increase of launcher cells, and an overall net gain of 185 Tomahawk-capable, vertical launch cells by the end of DD–963 class service.

5. Senator KENNEDY. Admiral Mullen, Admiral Wachendorf raised the issue of the early retirement of the DD–963 destroyers. These destroyers have been providing a significant contribution to the Navy's ability to maintain the required number of Tomahawk missiles in theaters to support requirements of the theater commanders in chief under the GNFPP. What steps is the Navy going to have to take to make up for the loss of the missile launchers in trying to meet the GNFPP requirements?

Admiral MULLEN. Due to the continual commissioning of DDG–51 class destroyers as replacements for the DD–963 class destroyers, Navy incurs no net decrease in missile launcher cells under the program of record (PB 03). Navy will experience a minimal, 1-year launcher cell loss under a worst-case accelerated decommissioning-schedule, but will continue to be able to meet the GNFPP requirement. If all DD–963 class ships are decommissioned by the end of 2004, there will be a net launcher cell loss of 391 cells which will be recovered, through DDG–51 commissionings by the end of 2005.

Navy currently maintains a reserve capacity in the launchers of most deploying DD, DDG, and CG class ships. Increasing the TLAM loads on the remaining deployers will maintain theater GNFPP levels until the net launcher cell loss is recovered without negatively impacting other weapons loads.

"BLUE/GOLD" CREWS—"HORIZON" CONCEPT

6. Senator KENNEDY. Admiral Wachendorf, in your statement you mentioned the Horizon concept, which is similar to Blue/Gold manning on Trident ballistic missile submarines where there are two crews for one submarine. However, you did not appear to give the Horizon concept much consideration as a viable alternative for crew manning to support presence requirements. While I am not ready to recommend the Horizon concept as THE answer, I am concerned that, if we try to meet our national security requirements with a smaller fleet that is implied by the current shipbuilding plan, or even try to meet increased requirements associated with the war on terrorism with our current force, we may be trying to do this at the expense of our sailors and marines.

I know that our men and women in the services will make sacrifices in defense of the country, but I do not believe that we should base our plans on the expectation that they should continue to make such extraordinary sacrifices for the foreseeable future. Is there a firm Navy plan for fleshing out these analyses that would provide more thorough reviews of such approaches as the horizon concept and other options for increasing forward naval presence?

Admiral WACHENDORF. Yes, the Navy is fleshing out these theories by conducting two pilot programs in the Pacific Fleet employing the deployment of *Spruance*-class destroyers beginning with the *Abraham Lincoln* battle group and *Arleigh Burke*-class guided missile destroyers beginning with the *Constellation* battle group. Both groups of ships will swap crews at approximately 5.5 months deployed. The crews will again swap once more at the 10.5 month deployed point. At the end of these pilots, various factors concerning crew morale, welfare, and effectiveness as well as ship performance and maintenance, will be evaluated to ensure that our attempt to relieve OPTEMPO stress on our sailors ship is, in fact, accomplished. If we find our pilot did not meet our expectations, we will discontinue this initiative.

DE-SCOPING TO REMAIN WITHIN BUDGET

7. Senator KENNEDY. Admiral Mullen, your prepared statement on page three says that the Navy is prepared to live within the budget for a ship program by descoping or delaying capability to maintain the funded, executable program. How is this statement consistent with statements by the Chief of Naval Operations that we need to build the correct numbers of ships, but we also need to ensure that they have the right capabilities as well?

Admiral MULLEN. I am in complete agreement with the Chief of Naval Operations when he stated that we must build the correct number of ships with the right capabilities. However, both the CNO and I also recognize that until we have fully institutionalized plans to control cost growth and achieve stability in our shipbuilding programs, we may have to resort to descoping or delaying capability to deliver our ships. We are taking appropriate management actions such as funding shipbuilding programs to realistic, independent cost estimates, properly budgeting change orders and working closely with industry to mitigate the growth of costs in our shipbuilding programs and to prevent a recurrence of the creation of prior year bills for ships, requested in fiscal year 2003 and future budget submissions. If costs continue to rise in spite of these management efforts, the Department is prepared to descope or delay capability to maintain an executable program within budget constraints.

DDG–51 REQUIREMENTS

8. Senator KENNEDY. Admiral Mullen, you indicated that the requirement for buying DDG–51 destroyers had been raised to meet a requirement for providing missile

defense capability. Is there an official requirements document that has been vetted through the Navy Requirements Oversight Council or the Joint Requirements Oversight Council to validate this requirement?

Admiral MULLEN. The additional requirement for DDG–51s stems from 3 years of OPNAV warfare analysis. This analysis was driven, in part by the requirement (as stated in the 2003 Defense Planning Guidance (DPG)) for Navy to study the forward basing of ballistic missile defense (BMD) (formerly theater ballistic missile defense) capable surface combatants. Capability shortfalls identified in these analyses (amphibious ready group/combat logistics force escort, as well as BMD, littoral antisubmarine warfare and mine warfare) are those normally delivered by multi-mission surface combatants (e.g., DDG–51).

The Navy is developing a new concept of operations that provides a global response capability by adding surface escorts to the amphibious ready group (forming the expeditionary striking force) and by standing up dedicated surface action groups (strike/land attack in the near-term, becoming BMD capable as weapons and technologies mature). These additional DDGs (Aegis) are required in order to support the carrier battle group, expeditionary striking force, and surface action groups that form the key force elements of this concept.

9. Senator KENNEDY. Admiral Mullen, since the Defense Department has canceled the Navy area missile defense program, I presume that your requirements for missile defense capability are tied to meeting the sea-based mid-course program requirements within the Missile Defense Agency's portfolio? Has the Navy chosen the DDG–51 as the preferred platform to carry the sea-based mid-course missile defense capability?

Admiral MULLEN. No. DPG 2003 calls for the ability to provide mobile, projected missile defense, a capability that can only be delivered by ships. While the increased number of DDG–51s could possibly provide this capability, the necessity for ensuring access in light of the evolving BMD threat, as well as ensuring a global presence and response capability drives the number of DDGs required.

The current sea-based mid-course program is undergoing an extensive concept definition review to characterize the system that will transition to the Navy. Current plans are to deploy sea-based mid-course capability on cruisers. Although the Navy area program planned for deployment on cruisers and destroyers was canceled, the requirement remains for a Navy terminal defense capability. Missile Defense Agency is evaluating alternatives for a sea-based terminal defense capability.

DESTROYER SHIPBUILDING INDUSTRIAL BASE

10, 11. Senator KENNEDY. Secretary Young, during the hearing we discussed the prospects for maintaining the destroyer industrial base with the current Navy shipbuilding plan that includes only two DDG–51s per year through fiscal year 2007, and a DD(X) in fiscal year 2005. I believe you indicated that we should perhaps discount the conclusions of the previous Navy studies since they contained flawed or out-of-date assumptions about the shipyards or the workloads in the shipyards. Could you tell which assumptions you believe are flawed?

Is it the Navy's assessment now that the current shipbuilding plan is adequate to support the destroyer industrial base?

Secretary YOUNG. The Navy's November 2000 Update to the 1993 DDG–51 Industrial Base Study reaffirmed that both DDG–51 class shipyards can rcmain viable with the shared, annual workload of three new procurement DDG–51s, plus additional work. The report was based on the PB01 budget profile and pointed out a severe risk due to the workload problem during the transition from the DDG–51 program to the DD 21 program.

There have been changes both in shipbuilding budgeted quantities and corporate structure since the last update that need to be taken into account when assessing the adequacy of the shipbuilding plan to support the destroyer industrial base.

Quantitative Assumption Changes Since the Last Update:

- PB02 increased the DDG quantity procured in fiscal year 2002 to three.
- PB02 provided incremental funding for LHD–8 starting in fiscal year 2002 in lieu of the PB01 planned date for LHA(R) in fiscal year 2005.
- PB03 added six DDGs and deleted three DD 21 surface combatants from the PB02 surface combatant profile. That helped to mitigate effects on the industrial base of the PB01 profile.
- Ingalls and Bath Iron Works have both implemented leanmanufacturing programs to manage efficiently at low rate production.

• The U.S.S. *Cole* that was repaired at Ingalls, created significant unplanned work.

The addition of six DDGs to the shipbuilding profile in PB03 has stabilized and somewhat mitigated the severe industrial base transition risk to DD(X).

Also, since the respective mergers with General Dynamics (GD) and Northrop Grumman (NG), Bath Iron Works (BIW), and Ingalls (ISI) can no longer be treated as stand-alone companies. Today, General Dynamics and Northrop Grumman are treating BIW and ISI as part of their larger shipbuilding divisions and are working hard to mitigate workload imbalances by allocating work across their entire shipbuilding operation, taking advantage of the centers of excellence that exist within those companies.

Examples of Industry Action to Mitigate Workload Imbalances

• Northrop Grumman has transferred some LPD–17 module construction and outfitting from Avondale to Ingalls to take advantage of the experienced and under utilized combatant workforce.

• It is anticipated that some additional work will go to Ingalls, if the Navy moves all LPD–17 work to NG.

• GD is exploring the merits of using their state-of-the-art Quonset Point steel fabrication facility to support BIW surface ship construction.

• Both corporations are examining steps required to "right size" their surface ship workforce for a low rate production environment of two per year reflected in PB03.

• Both companies are also aggressively incorporating lean manufacturing techniques and processes that should improve their production efficiencies in years of lower production rates.

• GD has invested in construction of a state-of-the-art land-level fabrication facility, which will facilitate enhanced construction efficiency and reduce the man hours historically required to construct surface combatants.

However, a two ships per year DDG procurement rate is not without cost to the Government, which will pay increased unit costs. Furthermore, once the shipbuilders have downsized to accommodate low rate production, additional non-recurring costs would likely be incurred to restore an increased level of production if surface combatant procurement rates increased outside the FYDP.

DD(X) IN R&D

12. Senator KENNEDY. Secretary Young, your new strategy for buying the DD(X) is to purchase a ship in fiscal year 2005 using research and development funds. Using this approach, you said that, "Being able to adjust the RDT&E budget for the lead ship provides the best chance to control costs and define a production process that allows the Navy to affordably build the entire class of these next-generation surface combatants." It would appear that this would entail waiting until building the lead ship is fairly advanced in the production process to ensure that follow-on production efforts realize the benefits of these developments on the first ship. Under this approach, when would you be ready to start building the follow-on production ships?

Secretary YOUNG. A follow-on DD(X) ship production decision will be based upon several factors, including the maturity of the technology prototype development, component/system testing and progress of the ship's design. Progress in these areas will be assessed through the preliminary and critical design process, balanced against the validated, time-phased operational requirements document, which in turn will facilitate an informed follow-on ship start of production decision.

13. Senator KENNEDY. Secretary Young, how would this differ from current practices of providing a single gap year between lead ship and the first follow ships?

Secretary YOUNG. Funding the lead ship in RDT&E provides greater program flexibility than the current practice of providing a gap year between the lead ship and first follow ship, both funded in SCN. There will be opportunities with funding the lead ship in RDT&E, for annual reviews and adjustments to program capability and associated funding requirements, based upon the status and schedule for technology development and component/system testing. Depending on acquisition strategy and ship quantity profile, it may also be useful to fund the first follow ship in RDT&E. For example, this approach may be used if there is a lead yard/follow yard acquisition strategy or the first follow ship is procured in the year immediately following the lead ship.

14. Senator KENNEDY. Admiral Mullen, there would appear to be no explicit commitment to building more than the one DD(X) in R&D in the Future Years Defense Program (FYDP). Is there any specific commitment from the Office of the Secretary of Defense to build more than one DD(X) if the technologies in the DD(X) research and development program yield capabilities that can be fielded?

Admiral MULLEN. The number of DD(X)s that will be built has not yet been determined. The size of the DD(X) class will be based on several factors, such as current force structure requirements, rate of decommissioning other surface combatants and the budgetary balance between fleet maintenance and force recapitalization requirements. The FYDP submitted with the fiscal year 2003 President's budget provides research and development funding for construction of the first DD(X) commencing in fiscal year 2005. In order to provide an orderly transition to DD(X), as its technology matures, the fiscal year 2003 President's budget includes an additional six DDG–51s in fiscal years 2005 to 2007. The funds set aside for these destroyers in the FYDP could be transitioned to build DD(X)s in the outyears.

NAVY'S FIRE SUPPORT CAPABILITY

15. Senator KENNEDY. Admiral Mullen, the subcommittee has heard testimony over the past several years that the only solution to meeting the Marine Corps' surface fire support requirements would be the introduction of the capability that was going to be available on the DD 21, specifically the two 155 millimeter gun batteries that DD 21 was supposed to provide. Now the Navy has outlined a DD(X) program that would build a demonstration ship in R&D in fiscal year 2005, with no explicit plan to buy any more new design DD(X) vessels after that. We also know that the extended range guide munition has slipped again, the Navy has canceled the land attack standard missile, and there is no funded plan to build the advance land attack missile. Is there any prospect that the Navy will be able to meet the Marine Corps' fire support requirements during the current FYDP? If so, when would that be?

Admiral MULLEN. No, the Navy will not fully meet the Marine Corps' requirements for NSFS until outside the FYDP when DD(X) enters the fleet. DD(X) will have the capacity to carry the variety and volume of offensive, precise firepower that will enable our United States Marine Corps and light mobile United States Army Forces to complete their littoral missions. The 155mm advanced gun system (AGS), with "fully automated" ammunition handling system and a family of munitions/propelling charges, will achieve ranges of up to 100 nautical miles. With AGS, DD(X) will have the ability to deploy a high volume of affordable, precision-guided munitions with significantly improved ranges, accuracy, volume, firing rates and response times compared to the current generation of NSFS systems. Additionally, the Navy is assessing the affordability of submitting a future budget request for an ALAM program, which would be fielded with DD(X).

LPD–17 PROGRAM RESTRUCTURE

16. Senator KENNEDY. Secretary Young, you mentioned during the hearing that the Navy and the LPD–17 contracting team is considering moving LPD–17 construction from General Dynamics (Bath) to Northrop Grumman (Avondale and Ingalls). In consideration for this, construction of one DDG–51 would be transferred from Northrop Grumman to General Dynamics for each LPD–17 shifted.

You indicated that it might be more efficient to build all LPDs in the Northrop Grumman yards. What wasn't clear from your testimony was what is required from the Federal Government's side to make this agreement work. Does your analysis of what is more financially attractive to the Navy include the costs of any extra DDG–51s that are not in the current shipbuilding plan that might be necessary to make this transfer work?

Secretary YOUNG. There is no Federal Government action required to shift the LPD–17 class ship construction work from General Dynamics to Northrop Grumman, since the contractual arrangement for LPD–17 class ships built by BIW is between Northrop Grumman and BIW. However, because of the different rates/workforce mix at Northrop Grumman, the Government would negotiate a contract modification to its contract with Northrop Grumman to establish a new cost/incentive structure for construction of the BIW ships transferred to Northrop Grumman.

Our analysis did not include the costs associated with any DDG–51 ships that are not in the current shipbuilding plan. However, the Navy will benefit from these additional ships, which are necessary to maintain surface combatant force structure and benefit the industrial base.

LHA REPLACEMENT PROGRAM DECISION PROCESS

17. Senator KENNEDY. Admiral Mullen, the five amphibious assault ships in the LHA class will have to be replaced over the next decade or so. LHD–8 would presumably replace one of them. I understand that the Department of the Navy has not come to a decision on the requirements for the rest of the LHA replacement program. Reports indicate, for example, that the size of a potential replacement ship ranges from roughly 40,000 tons to as large as 75,000 tons. Why is there such a difference in displacement among the options that are under consideration?

Admiral MULLEN. The DOD acquisition process for major new systems is designed to ensure careful consideration of mission requirements, system capabilities, and costs. The process includes specifying the mission need for a new system, considering a broad range of alternative systems in a formal analysis of alternatives (AoA), and specifying goals and thresholds for key performance parameters in an operational requirements document (ORD) that is reviewed by the Services and CINCs, and ultimately approved by the JROC.

AoAs are intended to consider a wide range of alternatives in terms of capabilities and costs. The LHA(R) AoA is considering broad categories of alternatives including a repeat LHD–8 (with fact-of-life changes), a modified LHD, and new ship designs. There is a fairly broad range in the full-load displacement of the alternative ship designs, which is due to differences in the following factors: amphibious lift capacity, aviation capabilities, service life allowances, habitability standards, and survivability features. The AoA will show how variations in these types of factors affect the size and cost of the system and its ability to carry out the types of missions identified in the LHA(R) mission need statement (MNS), and thereby provide DON and DOD decision makers with clear and consistent information on cost and operational effectiveness for a range of choices. This information is intended to help them understand the choices and execute sound judgment on the appropriate balance of capability and affordability, taking into account the many competing requirements and budgetary demands. LHA(R) AoA results are due in summer 2002.

18. Senator KENNEDY. Admiral Mullen, when can we expect to see some resolution of the issues behind such a disparity in sizes of potential LHA replacement ships?

Admiral MULLEN. LHD–8 will replace one of the aging LHA-class ship. The other four LHAs will be replaced by LHA(R). The ongoing LHA(R) AoA process is considering a range of options including a repeat LHD–8 (with fact-of-life changes), a modified LHD, and new ship designs. Based on the analysis presented in the AoA, results of which are due in summer 2002, the Navy will determine the optimal alternative for the LHA(R).

19. Senator KENNEDY. Admiral Mullen, why should we be budgeting advance procurement funding in Shipbuilding and Conversion, Navy for LHD–9 when we have not decided on a configuration for the LHA replacement program, and when we have not paid off the rest of the $500 million+ we will owe on LHD–8 even after the funds in the fiscal year 2003 budget for LHD–8 are provided?

Admiral MULLEN. The LHA replacement analysis of alternatives is ongoing and will report out later this summer. The configuration for LHA(R) will not be determined until then.

The $10 million in SCN AP funding was shifted to LHD–9 by the Undersecretary of Defense Comptroller's office during the fiscal year 2003 OSD budget review process. Full funding of the LHD–8 in fiscal year 2003 is a high priority item on the CNO's Unfunded Requirements List.

QUESTIONS SUBMITTED BY SENATOR MARY L. LANDRIEU

INNOVATIONS IN MANPOWER

20. Senator LANDRIEU. Admiral Wachendorf, the portion of your testimony that deals with crew swapping is very interesting to me. I have always urged the various services to find innovative ways to increase operational tempo (OPTEMPO) where needed. I am excited to hear that Vice Admiral Lafleur is undertaking the first pilot program in this area. Does the Navy view crew swapping as a long-term plan to increase OPTEMPO or is it meant to meet the needs of our current situation in the war on terror?

Admiral WACHENDORF. The general area of increasing presence via alternative manning concepts was being studied prior to September 11. As such, it is potentially part of a long-term plan to increase OPTEMPO without the negative impacts on individual OPTEMPO. It could also be viewed as a means of maintaining pre-Septem-

ber 11 presence levels with a smaller force structure. The crew swaps described are two pilot programs in the Pacific Fleet employing the deployment of *Spruance*-class destroyers with the *Abraham Lincoln* battle group and *Arleigh Burke*-class guided missile destroyers with the *Constellation* battle group. Both groups of ships will swap crews at approximately 5.5 months deployed. The idea is to take *Fletcher* (a *Spruance*-class destroyer in the *Lincoln* battle group) and replace that crew with the *Kincaid* crew (a *Spruance*-class destroyer in *Constellation* battle group). The ship (*Kincaid*) would not deploy, but the (*Kincaid*) crew would fly out to Australia, Singapore or another location to take over the ship from the currently deployed crew. The *Oldendorf* crew from the *Nimitz* battle group will relieve the *Kincaid* crew. There may be one more iteration with a ship from the *Vinson* battle group.

Similarly the crew of *Higgins* (a DDG in the *Constellation* battle group) will be relived on station by the crew of *John P. Jones* (*Nimitz* battle group) and then by *Benfold* (*Vinson* battle group).

At the end of these pilots, various factors concerning crew morale, welfare, and effectiveness will be evaluated to ensure that our attempt to relieve individual OPTEMPO stress on our sailors ship is; in fact accomplished. If we find our pilot did not meet our expectations, we will discontinue this initiative.

21. Senator LANDRIEU. Admiral Wachendorf, even though crew swapping will result in a longer period of time in port between cruises that will allow maintenance and necessary upgrades to be done, will the longer time at sea put more wear and tear on our ships and increase operations cost?

Admiral WACHENDORF. Although the crew swapping initiative will reduce time spent transiting to and from forward areas, the anticipated longer times at sea and the longer times between homeport periods may put additional wear and tear on our ships and increase operations costs. This is one of the aspects of the pilot program that will be evaluated before the Navy makes a decision regarding expansion and/or adoption.

HISTORICAL SERVICE LIFE VS. ESTIMATED SERVICE LIFE

22. Senator LANDRIEU. Admiral Wachendorf, in your testimony, you point out that there is a disparity between the historical service life of a ship and the estimated service life. I think this is a difficult fact to stomach, as it seems to indicate that we are consciously making rosy estimates for a ship's length of service. If this is so, something must be done to bring our estimated service life even with the historical service life. You do point out that this disparity is mainly present in ships that have not been modernized. When one of our ships does receive the necessary upgrades, does it, in fact, fill out its estimated service life or does it still fall short?

Admiral WACHENDORF. With appropriate upgrades and modernization packages, many of our ships have met or exceeded estimated service life (ESL). For example, having undergone periodic scheduled maintenance and upgrades, *Austin*-class amphibious transport dock ships will have served nearly four decades when they are replaced by LPD–17. Other ship classes such as *Farragut* and *Adams*-class guided missile destroyers, which were retired at 31 to 33 years of service, benefited from a series of planned combat systems upgrades. The new threat upgrade (NTU) package was considered for these ships, but was terminated since modernization would not have been cost effective given the limited service life remaining. Most destroyer classes, including *Spruance*-class with vertical launch system capability added, have been modernized to last 29 to 30 years, just short of the 35 year ESL. Generally, the decision to retire a ship early or to modernize it to reach ESL is a function of the continued relevance of its combat systems to emergent threats versus modernization, operational and support costs.

23. Senator LANDRIEU. Admiral Wachendorf, is this disparity taken into consideration when the Navy projects fleet strength for future years?

Admiral WACHENDORF. Estimated service life is the primary factor used for long-term estimates of fleet strength. The referenced disparity between estimated service life and historical service life is a fact of life resulting from a ship's operational tempo, maintenance, and most significantly the continued relevance of installed technology to emergent threats that cannot be accurately estimated very far into the future. Typically, near-term investment decisions are based on warfighting capability to be maintained or gained versus acquisition and operational costs.

NEW OVERSEAS BASES

24. Senator LANDRIEU. Admiral Wachendorf, when you discussed the augmentation of Navy presence at pre-established installations, you only mentioned the Pacific. Did you consider increasing U.S. presence in any other theaters, specifically, the Atlantic/European region?

Admiral WACHENDORF. Requirements for augmentation of Navy presence at pre-established installations in the Pacific were developed in concert with the Joint Staff and CINCs and were based on regional stability concerns throughout the world.

OVERALL SHIP PROCUREMENT

25. Senator LANDRIEU. Secretary Young and Admiral Mullen, your budget for ship procurement requests just $6.1 billion for five ships. This is half the number of ships required to sustain your present force levels and is $5 billion below the Clinton administration's plan for fiscal year 2003 request of $11 billion for eight ships that was included in the fiscal year 2001 request. Each year, no matter who is in the White House, the Navy comes before Congress to state that the Navy plans to address the shortfall in ship procurement next year, or the year after. Unfortunately the outyears never come. Would you please submit for the record a copy of the Navy's shipbuilding plans included in the Future Years defense Program for each of the last 8 years?

Secretary YOUNG and Admiral MULLEN. Navy's shipbuilding plan is reviewed annually and programmed quantities can vary widely from year to year as funding priorities change. For a given year, the following table compares the projected quantities of new ship construction when first programmed in the FYDP versus the actual budgeted quantities for that year.

Quantity of Ships	Fiscal Year								
	1995	1996	1997	1998	1999	2000	2001	2002	2003
Projected	10	9	8	6	7	7	6	5	6
Budgeted	4	3	4	4	6	6	6	6	5 [1]

[1] Requested.

26. Senator LANDRIEU. Secretary Young and Admiral Mullen, if additional funding were available, what would your priorities for shipbuilding be?

Secretary YOUNG and Admiral MULLEN. If additional funding were available for shipbuilding, Navy would invest in a combination of new construction, conversions, and overhauls to maintain force structure and required warfighting capabilities, as well as to provide workload stability in the shipbuilding industry. The Department's priorities for shipbuilding are as follows:

- DDG–51: Add third ship in fiscal year 2003.
- DDG–51 AP: Add AP for third DDG in fiscal year 2004.
- LPD–17: Add second ship in fiscal year 2003.
- Submarine Engineered Refueling Overhauls (ERO): Add one ERO in fiscal year 2003.
- LHD–8: Fully fund the ship in fiscal year 2003 (liquidates fiscal year 2004–fiscal year 2006 incremental funding tail).
- *Virginia*-class Submarine AP: Procure an additional ship set of nuclear AP and non-nuclear AP for a future ship.
- CVN–69 RCOH: Fund $24 million of work removed from the original overhaul package due to funding constraints. (Assumes congressional support for $59 million "cost of war" request contained in Fiscal Year 2002 Supplemental Request.)
- CG Conversion: Fund two Baseline four conversions and non-recurring engineering costs in fiscal year 2003.

LPD–17

27. Senator LANDRIEU. Secretary Young and Admiral Mullen, it seems to me one of the reasons the shortfall for readiness funding is so high is that we are stuck operating ships with higher operating and manning costs. The 12 ship LPD–17 class is scheduled to replace 41 older obsolete ships. The LPD–17 class will operate with roughly one third the manpower (4,344 sailors versus 13,000 sailors). Can't we get

our operations, maintenance, and personnel costs under control by continuing to move forward with modernization programs like LPD–17?

Secretary YOUNG and Admiral MULLEN. You are correct that moving forward with our ship modernization program will have a dramatic affect on operations, maintenance, and personnel costs. In the specific example you bring up, the LPD–17 functionally replaces four classes of ships (LKA–113, LPD–4, LSD–36, and LST–1179 classes) resulting in a net savings to the Navy of almost 9,000 sailors and an operations and support cost avoidance of over $4 billion once the final LPD–17 ship is delivered.

In the particular area of ship personnel reductions, modernization will pay large dividends for all our programs with the side benefit of improved quality of life for sailors. The DD(X), JCC(X), and CVN(X) platforms will operate with 20–50 percent fewer sailors per ship compared to the ships they will replace.

ADEQUATE TRAINING

28. Senator LANDRIEU. Admiral Wachendorf, I understand that Admiral Natter and Admiral Fargo have developed a schedule to sustain two carrier battle groups and two amphibious ready groups in the war zone, but that is being done by shrinking the inter-deployment training cycle. I am concerned that, over time, this will result in our deploying forces being less well-trained. What force structure of carrier battle groups and amphibious ready groups is required to maintain this level of presence without shortening the inter-deployment training cycle or extending deployment lengths beyond 6 months?

Admiral WACHENDORF. Navy is capable of maintaining two aircraft carriers in the war zone with the current fleet composition (12 CVBGs and 12 ARGs) by changing most peacetime assumptions to those appropriate for combating the war on terrorism. These changes include: increasing transit speeds to theater; compressing training and maintenance timelines; and reducing at home and at sea quality of life stand-downs and port visits. Although the benchmarks of peacetime PERSTEMPO, 6-month deployments and two to one turn-around ratios are maintained; the maintenance, training, and personnel costs associated with the increased OPTEMPO will grow.

QUESTIONS SUBMITTED BY SENATOR JEFF SESSIONS

VIRGINIA-CLASS SUBMARINES

29. Senator SESSIONS. Secretary Young, what are the savings that could be achieved for *Virginia*-class submarines fiscal year 2003 through fiscal year 2007 by applying multiyear procurement?

Secretary YOUNG. The savings associated with multiyear procurement of *Virginia*-class submarines varies from about $70 million per ship, based on a five-ship contract, to about $115 million per ship, based on a seven-ship contract. The savings are dependent on the use of material and equipment buys in economic order quantities (EOQ).

30. Senator SESSIONS. Secretary Young, what are the savings that could be achieved for *Virginia*-class submarines fiscal year 2003 through fiscal year 2007 by buying equipment in economic order quantities?

Secretary YOUNG. The saving associated with a "block buy" procurement of *Virginia*-class submarines with EOQ ranges from about $35 million per ship, based on a five-ship contract, to about $60 million per ship, based on a seven-ship contract.

31. Senator SESSIONS. Secretary Young, what is the acquisition strategy for the *Virginia*-class submarines included in the budget request, and if not using economic order quantity authority provided in fiscal year 2002 legislation, why not?

Secretary YOUNG. The President's fiscal year 2003 budget request was based on procurement of one ship as part of a five-ship block buy procurement through fiscal year 2007. The submarines would be built by Electric Boat with Newport News Shipyard as a major sub-vendor in accordance with their teaming agreement. The fiscal year 2003 request includes advance procurement for 2-year long lead-time material for one ship in fiscal year 2005 and 1-year advance procurement for one ship in fiscal year 2004. EOQ investment was not included because the magnitude of the offsets required to fund this strategy was not affordable within the Department's fiscal year 2003 budget request.

SUBMARINE PROCUREMENT

32. Senator SESSIONS. Secretary Young, what amount of advance procurement would be required in fiscal year 2003 to initiate a multiyear procurement for the next 5 submarines?

Secretary YOUNG. The President's fiscal year 2003 budget request includes advance procurement (AP) in fiscal year 2003 of $706.3 million for long-lead-time materials (LLTM) for the fiscal year 2004 and fiscal year 2005 ships. It assumes a block buy contract approach for the next five submarines built at a rate of one per year.

To initiate a multiyear contract that includes economic order quantity (EOQ) procurement of material for the next five submarines, additional AP in the amount of $300 million is required in fiscal year 2003. Additional EOQ funding increments are required in the outyears to fully fund the material ordered in fiscal year 2003. The material ordered in quantity in fiscal year 2003 would be valued at approximately $500 million per ship.

33. Senator SESSIONS. Secretary Young, what amount of advance procurement would be required in fiscal year 2003 to initiate a multiyear procurement for the next 7 submarines?

Secretary YOUNG. The President's fiscal year 2003 budget request included AP in fiscal year 2003 of $706.3 million for LLTM for the fiscal year 2004 and fiscal year 2005 ships. It assumes a block buy contract approach for the next five submarines built at a rate of one per year. A multiyear contract, by statute, cannot be for more than 5 years. Therefore, if the number of ships in a 5-year multiyear were increased to 7, additional AP funding for LLTM would be required for 2 years and 1 year prior to the increase (i.e., in fiscal year 2004 and fiscal year 2005 for an additional fiscal year 2006 ship).

To initiate a multiyear contract that included EOQ procurement of material for the next seven submarines, additional AP in the amount of $400 million is required in fiscal year 2003. Additional EOQ funding increments are required in the outyears to fully fund the material ordered in fiscal year 2003. The material ordered in quantity in fiscal year 2003 would be valued at approximately $500 million per ship.

T–AKE AND COST IMPLICATIONS

34. Senator SESSIONS. Secretary Young, if the Navy does not exercise the option for the second option T–AKE ship in fiscal year 2004, what is your assessment of the cost implications for that ship?

Secretary YOUNG. The estimated cost impact of delaying the second option ship in fiscal year 2004 is an increase of approximately $30 million to the cost of that ship. The cost increase is due to inflation and the impacts to shipyard contracts with suppliers and shipyard production.

The contract impacts result from the shipyard renegotiating supplier subcontracts due to the stretch in schedule. Currently all vendor solicitations include option quantities timed to reflect the contract option exercise schedule. Changing the procurement schedule for the ship necessitates a change in the vendor procurement schedule causing an increase in the associated subcontract.

The production impact results from the sub-optimal workload in the shipyard. The current design and construction schedule under contract results in an evenly distributed workload that matches National Steel and Shipbuilding, Co., production capacity. Disturbing the even distribution results in inefficiencies and higher costs.

The contract and production impacts affect more than just the second fiscal year 2004 ship option, since the remaining ships bear the increase in costs associated with disturbing the evenly distributed workload. The total impact on the T–AKE program procurement costs due to anticipated changes to contract delivery schedules is an increase of between $50–$70 million.

JOINT COMMAND AND CONTROL SHIP

35. Senator SESSIONS. Secretary Young, when will you have the information required to ask for proposals to acquire the joint command and control ship?

Secretary YOUNG. The President's fiscal year 2003 budget request includes a lead ship in fiscal year 2006 and two ships in fiscal year 2007. The acquisition strategy currently under development plans an initial request for proposal for preliminary design efforts in early fiscal year 2003 to support a competitive award for detail design and construction in fiscal year 2006.

36. Senator SESSIONS. Secretary Young, is there adequate funding in this request for gathering that required information?

Secretary YOUNG. Efforts are currently underway to support requirement definition for the joint command and control ship and adequate funding exists in the PB03 request to support an award for preliminary design efforts in fiscal year 2003.

37. Senator SESSIONS. Secretary Young, what type of acquisition strategy will the Navy pursue?

Secretary YOUNG. The acquisition strategy is currently in development, but will include a competitive procurement. Due to the limited planned quantities for this class, the winning competitor is envisioned to build all the ships.

SHIPBUILDING COSTS—TRADE-OFF

38. Senator SESSIONS. Secretary Young, how will you ensure that program managers do not trade-off capability to avoid creating a prior shipbuilding cost?

Secretary YOUNG. Control of prior year shipbuilding cost growth is one of the Department's top priorities. I have provided specific guidance to all shipbuilding program managers delineating their responsibility for executing the complete scope of the program within budget, specifically configuration control of the approved baseline. The guidance is very specific on what changes to the program baseline that the program manager may approve. It is anticipated that this very detailed direction and guidance will enable the program managers to operate within established change order budgets. Any increased cost change to the baseline that does not meet the criteria of an approvable change will be submitted to the Ship Characteristics Improvement Panel for consideration and must be accompanied by funding recommendations. Through this tight control of changes or upgrades to the approved baseline, it is expected that increased change order requirements will not be a source of prior year shipbuilding cost growth. Before program managers are allowed to descope warfighting capability to avoid creating a prior year bill, senior civilian and uniformed Navy leadership would meet and agree on any deleted capability.

39. Senator SESSIONS. Secretary Young, does the Navy intend to obtain congressional approval prior to changing (cost/capability trade-off) a congressionally appropriated and authorized configuration for ships?

Secretary YOUNG. Congress will be informed of significant changes to the cost/capabilities of authorized and appropriated ships through Selected Acquisition Reports, the annual budget review briefings and whenever information is requested.

T–5

40. Senator SESSIONS. Secretary Young, on the T–5 tanker buy-out proposal, what other alternatives did you consider other than buying out the T–5 tanker leases and what savings do you expect from the buy-out?

Secretary YOUNG. Various alternatives were examined. First, we considered the costs of letting the current leases run their course through 2005 and 2006 and replacing the ships by going to the tanker charter market after that. Second, we considered extending the current charters for an additional 5 or 10 years. Lastly, we looked at a construction program for replacement tankers.

Assuming the ships can be used for an additional ten years, we estimate that exercising the Navy's purchase options will save $440 million (net of purchase price) over the life of the ships as compared to the first alternative. We estimate that both an extension and a new construction program would yield half of that.

41. Senator SESSIONS. Secretary Young, have thorough surveys of these ships been completed to determine what the maintenance costs will be once these ships are owned by the Navy and that they are worth buying?

Secretary YOUNG. These ships are under a continuous survey program through the American Bureau of Shipping. Each of the five ships involved in the purchase have been surveyed in the past year and all were determined to be in very good condition. The Navy has directly reimbursed the maintenance of these ships over the years and we believe that they are, and will continue to be, in very good condition. In our analysis, we presumed that maintenance costs would gradually rise as the ships get older and our savings estimates account for those rises.

SHIPBOARD FIRE SUPPORT

42. Senator SESSIONS. Secretary Young, has the Navy considered alternatives which would enable the Navy to deploy the shipboard fire support required by the Marine Corps and resident in the 155 mm gun by the original fiscal year 2009 target date?

Secretary YOUNG. Due to the large increase in weight from current guns to the 155 millimeter advanced gun system (AGS), it does not appear to be practical to install AGS on any existing surface combatant without significant ship modification. As such, there does not appear to be an opportunity to deploy the capabilities inherent to AGS until it enters the fleet with DD(X) in 2012.

To illustrate, the AGS with 600 (long range land attack projectile) rounds would weigh approximately 400 tons. With two AGS guns with one 600-round magazine each on DD(X), the weight would total 800 tons. In order to accommodate this significant load, DD(X) has been designed as a total ship system with gun placement a primary consideration in the ship architecture. In comparison, the 5″/62-caliber Mark 45 Mod 4 gun with 232 extended range guided munitions rounds and 210 conventional rounds currently weighs approximately 60 tons.

43. Senator SESSIONS. Secretary Young, what investment would it take to take advantage of a wider application of spiral development to push forward with the new hull, gun, and radars for the first 10 ships and move up the delivery date of the DD(X) destroyer?

Secretary YOUNG. Spiral development is the defining characteristic of the restructured DD(X) program. However, preliminary and critical ship design timelines and the schedule for engineering development modules prototype risk reduction testing make it impractical and risky to start construction of the lead DD(X) any earlier than fiscal year 2005. Spiral development will play a key role in defining the level of warfighting capability that will be delivered with the first flight of DD(X) in fiscal year 2011, but the Navy believes that the current program schedule provides the best balance between program development risk and future fleet force structure requirements.

BUDGET MANAGEMENT

44. Senator SESSIONS. Secretary Young, what processes and policies prevent two or more program managers from developing like capabilities resulting in the taxpayer paying twice for the same technology?

Secretary YOUNG. We certainly don't want to pay twice for developing the same technology. However, we often want to develop different technologies that achieve a similar capability. Pursuing families of technologies is prudent, and we do it intentionally. It reduces risk and gives the taxpayer the best return on investment.

To avoid buying the same technology twice, the Office of Naval Research (ONR) uses a five-step oversight cycle:

1. Division heads exercise administrative oversight of the program officers.
2. Department heads exercise administrative oversight of their divisions and program officers.
3. ONR's Program Council exercises routine corporate-level oversight by approving individual awards.
4. The Departments' boards of visitors—distinguished groups of outside expert who function a bit like university accreditation teams—provide an external review of our programs.
5. At the DOD level, we participate in the Department-wide planning and assessment process (Defense S&T Reliance) which provides the same oversight coordination desired above for the entire DOD.

Finally, we not only want to avoid duplication of effort, but we also want to be able to take advantage of advances and opportunities across a broad spectrum of scientific fields. Tracking specific awards within our overall scientific strategy helps ensure communication between program officers, and helps ensure multidisciplinary integration occurs.

SURFACE COMBATANTS

45. Senator SESSIONS. Admiral Mullen, what will be the impact on the remaining 108 surface combatants of decommissioning ships early?

Admiral MULLEN. The 2001 QDR presented a force structure of 108 active and 8 Reserve surface combatants. This force structure was assessed across several com-

binations of scenarios on the basis of the new defense strategy and force-sizing construct, and the capabilities of this force were judged as presenting moderate operational risk.

The Navy's goal is to continue to maintain current OPTEMPO standards while accepting moderate operational risk to recapitalize the force during this time to meet future requirements, achieving 116 surface combatants by 2010.

This strategy is the groundwork for the onset of the family of ships transition that bridges the gap between existing force structure and future ships. This does reduce the number of ships, in the near-term, but includes the additional enhanced warfighting capability that the multi-mission DDG–51-class has over the retiring DDs. Adding more DDG–51s and introducing initiatives, like sea-swap in the DDs and DDGs, to improve OPTEMPO and on-station time, reduces the risk by adding more strike, force protection, and undersea warfare capability to the existing force both forward deployed and at home.

46. Senator SESSIONS. Admiral Mullen, what additional funding would be required, by fiscal year, to keep a base force of 116 surface combatants throughout the FYDP, and what would be the recommendation for composition of that base force by fiscal year?

Admiral MULLEN. The actual composition of the force would depend on multiple assumptions (dominated within the FYDP by decommissionings versus new construction) and funding options. However, one option to reach 116 surface combatants would be to maintain the current mix of CGs, DDGs, and FFGs and postpone the scheduled decommissioning of 16 *Spruance*-class destroyers:

Class	Fiscal Year				
	2003	2004	2005	2006	2007
- NRF–FFG	8	8	8	8	8
- FFG	22	22	22	22	22
- DD–963	16	16	13	9	5
- CG–47	27	27	27	27	27
- DDG–51	39	43	46	50	54
Total	112	116	116	116	116

The cost to crew, maintain, and operate a *Spruance* buy-back plan that yields a surface combatant force level of 116 is $1.2 billion as articulated by the table below.

Total Savings	Fiscal Year					Total
	2003	2004	2005	2006	2007	
- Ship Operations	14.9	48.3	74.8	68.4	46.5	252.9
- Maintenance	23.9	41.0	87.1	81.3	67.0	300.3
- Manpower	13.6	117.8	192.5	201.2	134.6	659.7
Total	52.4	207.1	354.4	350.9	248.1	1,212.9

The *Spruance* decommissioning decision is driven by affordability. Under the program of record, the force level decreases over the FYDP largely due to the decommissioning of the more costly (manpower and maintenance), less capable (older technology) DD–963 class ships. However in fiscal year 2010, the force will exceed the 116 goal with the continued commissioning of new DDGs and the first DD(X). Although in the short-term the force level drops below the QDR level of 116, the Navy emerges with a more capable and more affordable force beginning in fiscal year 2010.

47. Senator SESSIONS. Admiral Wachendorf, did the Navy's cost/benefit analysis on reducing surface combatant force structure determine the additional risk to national security associated with dropping to 108 surface combatants? If so, provide the determination, and if not, what is the Navy's current assessment?

Admiral WACHENDORF. The cost/benefit analysis to reduce the number of surface combatants to 108 was primarily based on affordability in the context of today's threat environment. The decision to drop below 116 was a short-term reduction to allow for the development and construction of more capable ships. Although in the near-term we drop below the QDR force level of 116, we emerge in fiscal year 2010 with a more capable force. This more capable force includes over 60 DDGs, 27 Aegis

cruisers, and a more common architecture of combat systems with capabilities specific to the threat of 2010 and beyond. In addition, the restructuring of the force will allow for new ships to be built to a reduced manning standard and will improve life cycle management costs well into the future. This incurs a moderate risk associated with a near-term drop in ship structure to allow for a long-term capability growth in the force.

POTENTIAL BASES

48. Senator SESSIONS. Admiral Wachendorf, are there any overseas locations that have been analyzed to provide a forward base for quick reaction missile defense, maritime interdiction, and/or Tomahawk capability of a few ships that would not be attached to a battle group such as the ships in the Persian Gulf that perform those duties on a rotational basis?

Admiral WACHENDORF. There are several alternatives for homeporting 3–4 surface combatants in WESTPAC to provide a forward base for quick reaction missile defense. Singapore, Darwin, Australia and Chinhae, South Korea are all politically amenable to having strong U.S. force presence. They all have piers and harbor facilities that can accommodate *Aegis* ships. However all of these ports would need significant infrastructure improvement to properly support the stationing of U.S. ships. For example, pier electricity, CHT waste facilities, oily waste, refueling storage and delivery, NIPRNET/SIPRNET connectivity and all of the required base support services such as housing, medical, schools, exchanges and maintenance facilities would need to be constructed and manned. Additionally, land would need to be purchased to support basing options. Since there are no U.S. facilities in place in these harbors, it would be a large investment to develop the infrastructure to support 3–4 ships.

Japan has several ports that can facilitate U.S. ships. There would be significant political opposition to increasing forces anywhere in Japan. Yokosuka, Japan, is the current homeport for the forward deployed naval forces (FDNF) carrier battle group. The Yokosuka Naval Base is jointly operated by the U.S. and Japan. It possesses the infrastructure for basing and maintenance, but lacks the pier space to support additional ships. Ship changes are done on a one-for-one basis.

The Japanese government provides support each year to offset costs. The Japanese are under an economic strain and would like to reduce the amount they contribute towards supporting all U.S. forces. The local Japanese workforce is extremely well disciplined and skilled; the maintenance they provide is equal or superior to that found stateside. Logistics support for U.S. forces is enshrined in Japanese law, and a massive infrastructure for dependents-support and R&R has been established.

Guam as a U.S. territory also provides potential. It is the United States' only guaranteed failsafe against the loss of basing rights in East Asia. The revenue increases to Guam would be a significant benefit for its economy. Housing and amenities for U.S. personnel/dependents are adequate, though expansion and renovation (of existing housing stock) would be required. Since Guam was a large naval base in the past and already has infrastructure to support U.S. forces, it was used as a model to benchwork costs for forward basing ships. With the exception of Japan, costs in all other areas would exceed projected costs in Guam. In addition to infrastructure upgrades, a costly environmental impact assessment would need to be conducted. Estimated timeframe to achieve environmental approval and build the necessary typhoon/earthquake hardened infrastructure is a minimum of 7 years. A major concern in achieving upgrades to infrastructure overseas is the ability to divert the workforce. In addition to the local workforce, both skilled and unskilled labor would have to be brought into the country to support efforts.

Excluding Japan, Guam is the most cost effective location to station additional combatants with TMD capability and closest to support East Asian missions. The Guam decision would reverse a 1995 BRAC decision to reduce facilities. Japan is the most cost effective and closest location to support a TMD mission in East Asia. We already have established facilities to support ships and personnel. The quality of life available in Japan is far superior to that offered in other WESTPAC locations. Training opportunities already exist in Japan.

EMPLOYMENT ALTERNATIVES FOR SSGN

49. Senator SESSIONS. Admiral Wachendorf, what operational employment alternatives is the Navy considering to get the maximum operational days out of the SSGN converted submarines?

Admiral WACHENDORF. Four *Ohio*-class fleet ballistic missile submarines (SSBN) are funded for refueling and conversion to SSGN. These submarines will have a 70 percent operational tempo allowing them to spend 14 years of their remaining 20 year lifetime forward deployed. In other terms, their high operational tempo will allow between two and three SSGNs to be in theater continuously for 20 years beginning in 2007/2008. This operational tempo is achievable by employing the following concept of operations:

- SSGNs will retain the two-crew concept currently employed onboard our SSBNs and leverage off the training and maintenance infrastructures already in place in Kings Bay, Georgia and Bangor, Washington.
- Crew exchange and limited scope maintenance evolutions will be conducted "in theater" (e.g. at forward bases) to the maximum extent. SSGNs will only return to CONUS (Bangor or Kings Bay) for long-term maintenance, the frequency of which is under review.

"INCREASE THE MISSION CAPABILITY OF THE ATTACK SUBMARINE FORCE"

50. Senator SESSIONS. Admiral Wachendorf, what are the Navy's comments regarding the conclusions of the Congressional Budget Office March 2002 study "Increasing the Mission Capability of the Attack Submarine Force"?

Admiral WACHENDORF. Although not fully exploring all of the details of each area, the CBO study provides an informative analysis of SSN force structure and recommends three options to improve the effectiveness of our submarine force. Each of these recommendations have already been implemented in various degrees as follows:

1. Conversion of four *Ohio*-class fleet ballistic missile submarines to SSGN. This is a funded program today for delivery of SSGN starting in 2007. A future SSGN/SSN force will meet today and future mission requirements will be studied over the next several years.

2. Multi-crew manning of attack submarines. There are several unique issues that are not fully explored by the study. Dual/multi-crewing of SSNs is challenging for several reasons. An independent study that provides more depth is in the final stages of development. Of note, the submarine force has experience with dual-crewing onboard single mission SSBNs and is currently working through how this concept will transition to multi-mission forward deployed SSGNs.

3. Forward-basing attack submarines in Guam. The force will be basing SSNs in Guam for the first time starting in 2002. By early 2004, three SSNs will have been refueled and moved to Guam. The three SSNs are all first flight 688s that will have sufficient fuel to allow them to be operated at a higher OPTEMPO until their end of life. Over the next several years as the SSNs are operated from Guam, the submarine force will further explore the lessons and benefits from this type of force employment and its applications to other classes of submarines. These three SSNs will leverage off the current base infrastructure in Guam. Homeporting additional SSNs in Guam would require upgrading the base facilities at significant expense to the government.

51. Senator SESSIONS. Admiral Wachendorf, would applying the applicable concepts to surface combatants have a similar effect on their operational days?

Admiral WACHENDORF. In line with the CBO study on "Increasing the Mission Capability of the Attack Submarine Force," Navy is conducting two pilot "crew swap" projects programs in the Pacific Fleet whereby individual ship deployments would be extended to 11.5 months or longer while holding crew deployments at 6 months. In essence, crews would swap at mid point of the ship's deployment. Through the pilot programs, Navy hopes to determine the true costs and potential savings, while developing lessons learned to provide a firm analytical basis for recommendations to either expand the program or look for other alternatives.

HISTORICAL LIFE V. ESTIMATED SERVICE LIFE

52. Senator SESSIONS. Admiral Wachendorf, is the Navy the using historical life or estimated service life in the calculations for determining required investment to maintain about 300 ships?

Admiral WACHENDORF. Estimated service life (ESL) is one of several criteria the Navy uses to determine when and how much to invest in recapitalization to maintain our force structure. We also consider average age of the fleet and acquisition rates required to maintain core warfighting capabilities. Based on ESL alone, assuming a fleet-wide average ship service life of about 35 years, the Navy needs to

procure about 8.9 ships per year at a cost of about $12 billion per year to maintain about 310 ships.

53. Senator SESSIONS. Admiral Wachendorf, what is the impact on the annual number of ships the Navy will have to build and the resulting annual investment required if historical instead of estimated service life is used, and which should the Navy use to calculate their investment requirements?

Admiral WACHENDORF. Based on actual decommissioning data for all battle force ships over the last 10 years and projected service life of ships in commission, average historical service life (HSL) is about 30 years versus an average ESL of 35 years. Using the average HSL to determine shipbuilding requirements, the Navy would have to procure about 10.3 ships per year and invest about $12–$14 billion per year to maintain a 310 ship fleet.

Service life by itself is not used to determine investment requirements. Needed warfighting capabilities, projected investment requirements to maintain/operate existing fleet assets, sustaining the shipbuilding industrial base and the available Navy TOA in addition to service life are variables Navy relies upon in determining when and how much to invest.

TRAINING ON TRANSIT

54. Senator SESSIONS. Admiral Wachendorf, your written testimony regarding prepositioning ships in forward operating areas suggests that combatants could not be pre-positioned because they have complex command, control, communications, computers, and intelligence, surveillance, and reconnaissance (C^4ISR) and weapons systems aboard and that a crew flown in would have to take time to develop proficiency. This time would negate the time gained in not having to transit with the ship. Are there ships in the Navy for which this concept would be applicable such as auxiliary and support ships; and for combatants, whether or not the concept would provide a capability to the Navy, if the crews that flew out to man the ships were trained in a similar platform in the U.S. prior to flying out to the ship?

Admiral WACHENDORF. Unit readiness depends on both the ability of sailors to perform their individual specialties and on their integration into a proficient team that is able to fully employ the capabilities of their ship. This proficiency is developed through training during the inter-deployment training cycle and transit. Ship configurations are not identical; there are differences in both the individual skill requirements and the mix of specialties even between ships of the same class. As a result, some period of familiarization and team training on the systems unique to that ship will be required to achieve full crew proficiency on any new ship. In general, the less complex the ship systems and smaller the differences between the old and new ship, the less training will be required on arrival. The training required to achieve full crew proficiency would likely be less for auxiliary and support ships than for combatants. For all ship classes, having crews trained on similar platforms in the U.S. prior to joining the ship would reduce, but not eliminate, the time required to develop proficiency once onboard.

QUESTIONS SUBMITTED BY SENATOR JOHN MCCAIN

SENATOR LOTT'S ROLE IN THE SHIPBUILDING PLAN

55. Senator MCCAIN. Admiral Mullen, in a January 28, 2002 article "Responding to Lott, DOD Starts Funding LHD–9 And One More DDG–51" by Chris Castelli in the publication *Inside the Navy,* the article states:

> "At the urging of Senate Minority Leader Trent Lott (Republican—Mississippi), the Pentagon has made last minute adjustments to the Navy's shipbuilding plan in the Bush administration's fiscal year 2003 budget. The Pentagon put $74 million more toward a third DDG–51 destroyer and allocated $10 million in advance procurement for a ninth amphibious ship—LHD 9—that was not previously in the Navy's budget."

Is this true, yes or no?

Admiral MULLEN. The OSD Comptroller made two late changes to the Navy's fiscal year 2003 shipbuilding budget request by adding $74 million in advance procurement funding for a third DDG–51 destroyer in fiscal year 2004, and shifting $10 million for advance procurement funding for a fiscal year 2008 LHD–9. Any specific questions on the factors that precipitated the decision for these shifts should be referred to the OSD Comptroller.

AOA IN CONCERN TO LHA REPLACEMENT

56. Senator MCCAIN. Admiral Mullen, can provide the status of the AOA to replace the current LHA with an LHA(R)?

Admiral MULLEN. The LHA replacement [LHA(R)] AoA is scheduled to complete in the summer of 2002. The AoA is evaluating several alternatives including a repeat LHD–8, a modified LHD–8, and an entirely new ship design.

57. Senator MCCAIN. Admiral Mullen, are you also aware that the Comptroller in the Office of the Secretary of Defense deleted the funding for the study on the AOA-cutting $16 million from the RDT&E effort for the LHA replacement?

Admiral MULLEN. Yes, the Department is aware of this situation. During the November 2001 review of the Navy's Fiscal Year 2003 budget, the OSD Comptroller's office deleted fiscal year 2003 and 2004 research and development (R&D) funding for the LHA(R) program.

LHA(R) R&D funding throughout the FYDP was briefed to and approved by OSD (including the OSD Comptroller) at milestone A as the minimum R&D funding necessary to support the least expensive LHA(R) AoA alternative—a repeat LHD–8. Since the AoA completes in fiscal year 2002, this fiscal year 2003–2004 research, development, test, and evaluation (RDT&E) deletion does not directly impact the AoA study, the AoA final report or the Navy's ability to decide which LHA(R) alternative to pursue. However, the Department of the Navy will select a preferred alternative based on the results of the AoA and adjust RDT&E and SCN profiles as required to move forward.

58. Senator MCCAIN. Admiral Mullen, does the $10 million in advance procurement for LHA–9 that was added by the OSD Comptroller according to the Castelli article predetermine the results of the AOA?

Admiral MULLEN. No. The results of the LHA(R) AoA are not predetermined. The preferred alternative may or may not be based on the LHD–8. The LHA(R) AoA is ongoing and will report out in summer 2002. Alternatives being considered include: repeat LHD–8 with evolutionary modifications, modified LHD–8 upgraded to enhance the ability to operate the larger and/or heavier new generation amphibious systems, and new ship designs spanning a wide range in size and capability. Based on the analysis presented in the AoA, the Navy will determine the optimal alternative for the LHA(R) as part of the LHA(R) program. The $10 million in the fiscal year 2003 budget request allows the Navy to begin refining the AoA selected alternative's detailed capabilities/characteristics and other developmental work.

COMPARING LHA TO LHD

59. Senator MCCAIN. Admiral Mullen, you know that I have traveled to Afghanistan with other members of this committee. While there, I heard from several Navy and Marine Corps officers that the number one concern for replacing the LHA is safety because of a stability problem or high center of gravity issue, especially with deployed aircraft. Their concern was that even with some minor fixes with fuel compensation systems, the problem will be exacerbated when the Service deploys larger aircraft, such as the Osprey (MV–22) and the Joint Strike Fighter (JSF) which are replacements for the CH–46 and AV–8B respectively. I am told that the MV–22 is twice the weight of the CH–46 and that the JSF is believed to be about twice the weight of the AV–8B. Does the LHD class have similar stability problems as the LHA class?

Admiral MULLEN. The seven ships of the LHD class have improved stability characteristics over the LHA class and, therefore, do not experience weight and center of gravity issues to the same extent as the LHA. For example, LHD–7, commissioned in 2001, has greater than the required 1000 long tons of service life weight growth allowance.

60. Senator MCCAIN. Admiral Mullen, would you agree that the problem could be exacerbated with the planned future aircraft and vehicles envisioned for the Marine Corps?

Admiral MULLEN. LHDs have the growth allowance to accommodate MV–22 and JSF with aggressive weight control measures and the fuel oil compensation ship alteration although LHDs have less vehicle storage space (square footage) than LHAs.

The Navy's five LHAs need to be replaced as soon as possible, as they are rapidly reaching the end of an already extended service life. The LHA(R) AoA was initiated to ensure that both Marine Corps and Navy 21st century requirements are addressed, including the issues the Senator raises regarding the impact of heavier and

larger aircraft/vehicles and overall amphibious force vehicle storage area. An LHD repeat is just one of several alternatives being considered in the LHA(R) AOA to meet requirements.

61. Senator MCCAIN. Admiral Mullen, what growth percentages are currently planned for the LHD class of ships?

Admiral MULLEN. The CNO-specified minimum service life allowance for the LHD class at delivery from the building yard is 0.5 feet KG (KG = ship's center of gravity above the keel) and 1,000 long tons of displacement service life (about 2.5 percent). The requirement is documented in the LHD class top level requirements document of August 2, 1991.

62. Senator MCCAIN. Admiral Mullen, is the LHD a good replacement for the LHA class of ships, considering that the ship does not meet the requirement in planned future vehicles and aircraft for the Marine Corps or our special operations community and considering the amphibious lift requirement of 2.5/3.0 MEB?

Admiral MULLEN. Among several alternatives, the ongoing AoA is addressing whether the LHD is a good replacement for the LHA class. Continuing to build LHDs, as well as ship design modifications to enhance the capability to operate the larger and heavier new generation amphibious systems such as the Joint Strike Fighter, MV–22 Osprey, advanced amphibious assault vehicle and medium tactical vehicle replacement is currently being examined. The AoA is also investigating the optimum way to reach the fiscally constrained amphibious lift requirement of 2.5 Marine expeditionary brigades. The AoA is expected to report out later this year.

63. Senator MCCAIN. Admiral Mullen, because of the well deck inside the LHD, isn't the LHD available square footage less than the LHA?

Admiral MULLEN. LHD available vehicle stowage space is approximately 4,500 square feet less than the LHA. Both ship classes have large well decks, which are approximately the same length. Modifications to the LHD well deck design allow LHDs to carry two additional landing craft air cushion (LCACs) compared to the LHA. While giving up vehicle stowage space in the LHD, other design changes were made to improve the aviation capabilities and provide more protection for critical command and decision spaces in the LHD.

R&D FUNDING

64. Senator MCCAIN. Admiral Mullen, it seems to me that the LHD is not a very transformational program, especially considering that it is the exact same hull of the current LHA class that is based on a 1950s design. It seems to me that if the LHA (R) class ship is built to have a lifespan of 50 years with no further R&D invested, then LHD–9 will be a 100-year old design when it is decommissioned in the 2050 timeframe. Would the Navy develop an aircraft carrier (CVN), destroyer (DD), or submarine (SSN) without a robust R&D effort?

Admiral MULLEN. No, the Navy would not build a new ship class without a robust R&D effort. The LHA replacement AoA is ongoing and will report out later this summer. The Navy plans to use the $10 million added by OSD for LHD–9 in the fiscal year 2003 President's budget request to initiate engineering development of the LHA(R) AoA preferred alternative, regardless of which alternative is selected. In addition, RDT&E resources will need to be adjusted to reflect the preferred alternative.

65. Senator MCCAIN. Admiral Mullen, where is the R&D funding for a major amphibious ship like LHA(R)?

Admiral MULLEN. R&D funding was deleted from the fiscal year 2003 budget under the misconception that Navy was leaning toward an LHD–8 repeat as the preferred replacement for LHA-class ships and would not require as much R&D and not until later in the FYDP. If the results of the AoA support a modified repeat LHD or new ship design, additional RDT&E funds will be required. At that time, it may be necessary to revisit the current plan to use the $10 million in fiscal year 2003 SCN AP for a LHD–9.

66. Senator MCCAIN. Admiral Mullen, are you not relegating the amphibious Navy to non-transformational status?

Admiral MULLEN. No. While the LHA(R) hull shape may be close to the original, its combat systems suite, communications gear and information technology set up will be state of the art. What we envision for LHA(R)—advanced command and con-

trol capabilities, network centric warfare systems, Joint Strike Fighter, onboard targeting—will enable LHA(R) to support expeditionary maneuver warfare in a manner that was not imaginable when the LHAs were designed. The planned service life of the LHA(R) class, like the LHD class, will be 40 years.

BUYING T–5 TANKERS

67. Senator MCCAIN. Admiral Mullen, on February 8, Rear Admiral Church, USN, delivered to Congress the Department of the Navy's "Fiscal Year 2003 Budget Overview." On page 18 of the Navy's budget brief is a slide called "Promote Better Business Practices, Managing the Department in a Business-like Manner." I noticed a bullet that states "T–5 Tanker Buyout." Will you please tell the me why the Navy has decided in its fiscal year 2003 budget to buy the T–5 tankers rather than to continue to lease them as was the plan several years ago?

Admiral MULLEN. The T–5 tankers were leased in the early eighties rather than purchased because of the budgetary circumstances that existed at the time. When the ships were leased, the Navy negotiated for favorable purchase options that, conditions permitting, could be exercised at the appropriate time. Those conditions exist and that time is now. We have a continuing need for these vessels beyond their lease terms, which end in 2005 and 2006. If we let our options expire, we will end up chartering (leasing) higher cost replacement tankers.

PURCHASING CRUISE SHIPS

68. Senator MCCAIN. Admiral Mullen, there are reports that the Navy is being approached to purchase a pair of unfinished cruise ships at the Northrop Grumman Shipyard in Pacagoula left behind when American Classic Voyages went bankrupt for use as mobile housing or hospital ships. Is the Navy in any way interested in purchasing such ships?

Admiral MULLEN. The Maritime Administration, which now "owns" one of the two ships due to the default on Title XI loans, has inquired about the Navy's interest in acquiring the incomplete passenger cruise ships available as a result of the bankruptcy of American Classic Voyages, Inc. The Conference Report accompanying the Fiscal Year 2002 Department of Defense Appropriations Act also addressed this issue.

A team of Navy engineers recently visited the partially completed passenger ships in Pascagoula, Mississippi, and concluded that the ships are not suitable for use as command and control ships due to their structural design and lack of military survivability features. We also explored the ship's utility for other non-combat ship missions and found that while it may be technically feasible to modify the ships for use as hospital, recreational, or berthing vessels, the Navy does not anticipate a requirement for additional ships of this type. Accordingly, the Navy has declined the offer to acquire or use the cruise ships under construction.

69. Senator MCCAIN. Admiral Mullen, is there a need for such ships?

Admiral MULLEN. No. We looked at the ships' utility for non-combat ship missions and found that while it may be technically feasible to modify the ships for use as hospital, recreational or berthing vessels, the Navy does not have a requirement nor the need for any more of these ship types today.

QUESTIONS SUBMITTED BY SENATOR SUSAN COLLINS

THE VALUE OF DD(X) AND FAMILY OF SHIPS

70. Senator COLLINS. Secretary Young and Admiral Mullen, DD(X) is expected to make a significant contribution in the Navy's ability to achieve affordability breakthroughs with dramatic reductions in fleet O&M including personnel costs, and DD(X) should allow the Navy to field a fleet of highly capable and affordable warships. Would you discuss the value that you believe DD(X) and its family of ships will provide the Navy team, and further comment on the criticality of the $961 million investment proposed in the fiscal year 2003 budget for this family of ships?

Secretary YOUNG and Admiral MULLEN. Maritime dominance in the 21st century requires a naval force capable of projecting power and defeating anti-access threats. U.S. naval forces will be required to project power forward, provide assured access in the littoral environment and support a wide variety of joint and combined operations. Defeating and deterring future national threats will require a wide range of capabilities provided from a family of ships. These ships will be required to provide:

- Precision strike and volume fires;
- Anti-access littoral missions; and
- Missile defense.

In order to accomplish these complex and challenging missions, the future surface naval force will consist of four elements:

- Advanced, multi-mission destroyers, DD(X), capable of providing precision strike and volume fires,
- Advanced cruisers, CG(X), providing sustained air superiority against air-breathing and ballistic threats,
- Agile littoral combat ships (LCS) capable of defeating enemy littoral defenses including mines, small boats, and diesel submarines, and
- In-service Aegis-equipped surface ships.

Transformation of the future naval force starts with the DD(X) technology development effort. Many of the cutting edge and future technologies that will assure maritime dominance are being developed under the DD(X) program for the future family of ships.

The fiscal year 2003 budget request for DD(X) supports provides funding to support the downselect to a single design agent in Spring 2002 and the development of transformational systems. The DD(X) design agent will focus on the development of engineering development models (EDMs) during fiscal year 2003 including:

- Advanced gun system and magazine;
- Integrated power systems;
- Radar suite (multi-function radar/volume search radar);
- Total ship computing environment;
- Advanced vertical launch system;
- Integrated deckhouse and apertures;
- Autonomic fire suppression system;
- Infrared mock-ups;
- Hull form scale model; and
- Integrated undersea warfare system.

In fiscal year 2003, the design agent will also perform design studies to support the spiral design review/requirements revalidation and the integration/evolution of the overall DD(X) ship design. Full funding is critical to achieve the innovation and transformational technologies that DD(X) will bring to the fleet.

DDG–51 AND FF6–7

71. Senator COLLINS. Secretary Young and Admiral Mullen, please delineate the Navy's plans for funding near-term efforts on the DDG–51 destroyer optimized manning initiative and for FF6–7 frigate modernization. In the case of DDG–51, the plan to implement optimized manning initiative can enhance operational readiness and significantly but safely reduce crew-size. This initiative, I understand, has great potential to dramatically reduce Navy ship O&S costs, while at the same time enhancing sailor quality of service, and in the case of FF6–7 modernization—an acceleration of planned activities, including force protection upgrades. The plan would maintain mission functionality, improve reliability/maintainability and safety, and upgrade combat detection and ship self-defense capabilities. This initiative, I understand, is crucial given Navy leadership's decision to maintain the remaining 33-ship FFG force, in part because of the expectation these ships may have roles related to the evolving homeland defense mission. Please comment on the more general question of whether investing in or accelerating both initiatives is likely to pay larger dividends in terms of a more capable and affordable surface force in the long-term.

Secretary YOUNG and Admiral MULLEN. Last year, N76 tasked Program Executive Office Theater Surface Combatants (PEO TSC) to ". . . examine technologies, both current and prospective that have a potential of reducing the manning of the DDG–51-class combatants" and ". . . examine policies and procedures that could also affect manning." In response, PEO TSC chartered a DDG–51-Class Manning Assessment Panel to begin defining and evaluating options to reduce manning on *Arleigh Burke*-class combatants. Their initial findings and recommendations are currently being briefed to Navy leadership. In parallel with this undertaking, each fleet CINC is conducting an "experiment" to reduce manning on one cruiser and one DDG in their respective fleets. This "experiment" is ongoing and two of the ships should deploy soon. The goal is to take lessons learned from these reduced manning experiments and evaluate the results in conjunction with the studies being conducted by the DDG–51 Manning Assessment Panel to determine the best long-term solution

for DDG manning. Once these evaluations are complete the most beneficial technology projects could be considered for funding. Preliminary findings to date, however, make it clear that any one technology application alone will not significantly reduce manning, but can act as an enabler.

The Navy has committed to modernizing the FFG class by upgrading both its hull, mechanical, and electrical (HM&E) as well as topside combat system enhancements for 24 ships in the class. Through 1999 efforts, the Navy determined its lead maintenance concerns with the class and is moving forward with contract awards to address those concerns. These HM&E efforts include: re-engine the ships service diesel generators; 6,800 GPD reverse osmosis desalinization capability; and replacement of the rigid hull inflatable boat (RHIB) davit with a slew arm davit (SLAD) to improve both RHIB launch safety and decrease the high maintenance cost of the existing davit. Additional enhancements include installation of self-contained breathing apparatus (SCBA) and ventilation modifications to the ships main spaces.

Combat system improvements include installation of the close-in weapons system block 1B with surface firing capability and the installation of Nulka anti-ship missile decoy launching system. Fielding for both of these modernization efforts will take place between fiscal year 2003 and fiscal year 2007. Additional modernization efforts for the remaining ships in the class are being carried above core during the fiscal year 2004 budget development process. Force protection upgrades have been recently defined as an additional MK–38 25mm chain gun and the installation of two additional .50 caliber machine gun (MG) mounts with their associative ammunition storage lockers and communications circuits required. Costs to install those defensive systems are being developed and should mature in time for installation during the timeline for the above-mentioned modernization efforts.

A THIRD DDG

72. Senator COLLINS. Secretary Young, the President's fiscal year 2003 budget request proposes making an additional down payment on a third fiscal year 2003 DDG. The $74 million advanced procurement added to the $125 million appropriated by Congress late last year provides a meaningful commitment and another building block to funding and executing a shipbuilding contract for a third fiscal year 2003 DDG–51-class ship this year. Also of note is the fact that the Navy's unfunded requirements list for fiscal year 2003 includes full funding of the third fiscal year 2003 DDG–51-class ship and AP for a third ship in fiscal year 2004 as very high priorities to the Navy leadership. How high a priority is funding a third DDG in the shipbuilding unfunded request?

Secretary YOUNG. Adding a third DDG in fiscal year 2003 is the most appropriate candidate for additional new shipbuilding construction funding in fiscal year 2003.

73. Senator COLLINS. Admiral Mullen, the Navy's fiscal year 2003 unfunded requirements list recently provided to Congress, placed a very high priority on adding funds to sustain the three-DDG procurement rate in fiscal year 2003 and fiscal year 2004. The rationale provided in the Navy's UFR for increasing funding for the third fiscal year 2003 DDG–51 destroyer states that these funds are necessary to: "support recapitalization of the Surface Combatant Force, and to maintain surface combatant industrial base." You may be aware that the CNO and Navy Secretary have gone on record expressing strong support for addition of a third fiscal year 2003 DDG, and I believe it is critical that this issue be considered in terms of meeting military requirements, and as it relates to efforts to preserve the specialized, but fragile surface combatant industrial base. Please describe the operational, force structure, and multi-mission value of our front-line DDG–51 *Burke*-class *Aegis* destroyers. Specifically, how are they contributing to military effectiveness and force flexibility today and why do you believe is it important to "support recapitalization of the Surface Combatant Force"—as noted on the Navy's UFR?

Admiral MULLEN. The mission of the *Arleigh Burke*-class destroyer (DDG–51) is to project power simultaneously in multiple dimensions of naval warfare. These include the destruction of enemy cruise missiles, aircraft, surface ships, and submarines and to attack land targets in support of joint or combined operations .

The DDG–51 class destroyer is designed to be a battle group asset and a multipurpose surface combatant capable of sustained operations in threat areas outside the umbrella of battle group operations including the littorals. They feature extraordinary seakeeping and low observability characteristics. Today, we are seeing this multi-mission platform conduct maritime interdiction operations (MIO) in the Arabian Gulf and Eastern Mediterranean, Tomahawk strikes, and battle group defense all in support of the war on terrorism.

The 2001 Quadrennial Defense Review (QDR) revalidated the requirement for 116 surface combatants to meet all expected peacetime and warfighting missions. However, this force structure, which contained only 57 DDG–51 class destroyers, was considered a moderate operational risk. Adding more DDG–51s would reduce that risk by adding more strike, force protection and undersea warfare capability to the existing force. Additionally, due to the accelerated retirement of less capable and more costly to operate *Spruance*-class destroyers and the transition to DD(X), additional DDGs are needed and can be delivered more rapidly in the near-term than other shipbuilding programs thus re-capitalizing the surface combatant force in both numbers and improved capability. Re-capitalization of the force is necessary if we are to maintain both a quantitative and qualitative edge and support a diminishing industrial base.

DELAYS IN SHIPBUILDING

74. Senator COLLINS. Secretary Young, the CNO testified that the fiscal year 2003 proposed priorities invest in current readiness for our naval forces. However, I am aware that there have been some deferred depot maintenance periods due to current operations (i.e., combating terrorism) on the *Los Angeles*-class submarines in fiscal year 2002, which will impact fiscal year 2003 and outyear workload schedules, placing the fleet ready submarines at risk to meet future missions as required by the CINCs. These delays can not only adversely affect fleet readiness, they can also cause dramatic workload imbalances at our shipyards. I am concerned that continued shifts in the workload to future years will place undue stress on the fleet and the yards. Therefore, I would like your commitment that your workload plans will be adjusted to maintain a stable workload and workforce at the shipyards.

Secretary YOUNG. Ship depot maintenance plans are continuously updated to incorporate actual execution, operational impacts, and financial resources. Availabilities are deferred only after the risk to Fleet readiness associated with deferring the work is determined and deemed acceptable.

The Navy actively works to refine and schedule ship depot availabilities for effective shipyard execution. Keeping the shipyard workload level is essential to efficient operation and is a key consideration in scheduling availabilities.

A skilled and motivated shipyard workforce is essential to maintain the Navy's high state of material readiness. Recognizing that many in the public shipyard workforce are rapidly approaching retirement eligibility, a primary focus of the Navy's depot maintenance program is maintaining a stable workforce with the skills we need. In view of these needs, we appreciate the support Congress has given the naval shipyard apprentice programs which will provide the skilled workers we will need in the future.

LCS CONCERNS

75, 76. Senator COLLINS. Admiral Mullen, I have been recently hearing discussions that the Navy may be accelerating the littoral combat ship (LCS) to deploy ahead of the development of DD(X). DD(X), as I understand it, is to be the engine and the lead shipbuilding program that will drive the rest of the family of ships. While LCS may indeed have a unique, contributory niche role in that future netted force, I am concerned that the Navy may be getting ahead of itself in ascribing characteristics to LCS for which a requirements assessment has yet to be conducted or a concept validated. Has the Navy performed the traditional analysis of alternatives requirements on the LCS ship? Can you respond to my concerns regarding this member of the DD(X) family?

Admiral MULLEN. The Navy has not yet conducted a traditional AOA for the LCS.

However, the Navy is developing a draft surface combatant family of ships capstone requirements document (CRD). This document will be an overarching requirements document from which the individual operational requirements documents for the DD(X), CG(X), and the LCS will be derived. Although a traditional AOA has not been conducted, the Navy is leveraging off the CRD and a number of studies to help define the LCS requirements.

The Navy is in the early process of exploring technologies and potential characteristics for the LCS. As an example, the Naval War College (NWC) was tasked to recommend characteristics best suited for LCS; and, if the technology exists, or will exist in the near-term, it will support these characteristics. The Navy plans to use the data from these studies as contributory material in the development of the ORD to support the LCS acquisition. A formal ORD development and validation process,

along with the required supporting analysis, is beginning. This will be a necessary part of the acquisition documentation needed for LCS Milestone decisions.

FACTORY EFFICIENCY

77. Senator COLLINS. Admiral Mullen, the submarine factory workload is seeing a rise in anticipated future requirements, particularly in light of the Trident submarine conversions and the increased number of *Los Angeles*-class refuelings over the next few years. I believe that this influx of work should be providing additional opportunities across the submarine factory. However, the yard located in my state is at risk of seeing dramatic peaks and valleys in its workload during fiscal year 2003 and fiscal year 2004. This is simply unacceptable. Are you looking into ways that the Navy can more efficiently utilize the yards supporting the submarine factory to ensure a level workload at all of the naval shipyards is implemented to ensure that the submarine factory is operating at it maximum efficiency?

Admiral MULLEN. The contribution provided by the workers of the naval shipyards is important to the Navy and the Nation. The innovation and dedication to quality submarine maintenance by the workers at Portsmouth Naval Shipyard (PNSY) is greatly appreciated by the Department.

The fiscal year 2003 workload phasing challenge at PNSY is primarily driven by the difficult decision to delay the U.S.S. *Annapolis* depot modernization period (DMP). Delaying this DMP was considered the best available option to fund Navy operational priorities. This option limited the effect to a single submarine.

The Navy is continuously evaluating the scheduling of ship availabilities to achieve the highest state of readiness balanced against shipyard workload and efficiency considerations. In formulating the fiscal year 2003 budget the Navy carefully considered workload at PNSY. The budgeted workload is consistent with fiscal year 2002 budgeted levels. The Department considers several factors when assigning submarine availabilities. They include:

a) Assignment of effort to an industrial facility near the ship's homeport;

b) Maintaining reactor servicing skill levels; and

c) Avoiding, to the extent practical, major shifts in workload levels across all the shipyards.

The Department is in the process of evaluating availability assignments through the FYDP. All four of the naval shipyard commanders are part of the planning process. Their inputs are extremely valuable as the Department goes through the difficult effort of achieving the optimum balance between fleet readiness, fiscal realities, and shipyard workloading.

[Whereupon, at 4:34 p.m., the subcommittee adjourned.]

DEPARTMENT OF DEFENSE AUTHORIZATION FOR APPROPRIATIONS FOR FISCAL YEAR 2003

TUESDAY, APRIL 9, 2002

U.S. SENATE,
SUBCOMMITTEE ON SEAPOWER,
COMMITTEE ON ARMED SERVICES
Washington, DC.

NAVY EQUIPMENT REQUIRED FOR FIELDING A 21ST CENTURY CAPABILITIES-BASED NAVY

The subcommittee met, pursuant to notice, at 2:37 p.m. in room SR–222, Russell Senate Office Building, Senator Edward M. Kennedy (chairman of the subcommittee) presiding.

Committee members present: Senators Kennedy, Reed, Warner, McCain, Sessions, and Collins.

Committee staff member present: David S. Lyles, staff director.

Majority staff members present: Creighton Greene, professional staff member; and Christina D. Still, professional staff member.

Minority staff members present: Judith A. Ansley, Republican staff director; Edward H. Edens IV, professional staff member; Gary M. Hall, professional staff member; Ambrose R. Hock, professional staff member; and Thomas L. MacKenzie, professional staff member.

Staff assistants present: Daniel K. Goldsmith and Andrew Kent.

Committee members' assistants present: Brady King and Christina L. Martin, assistants to Senator Kennedy; Frederick M. Downey, assistant to Senator Lieberman; Elizabeth King, assistant to Senator Reed; Benjamin L. Cassidy, assistant to Senator Warner; Christopher J. Paul, assistant to Senator McCain; Arch Galloway II, assistant to Senator Sessions; Kristine Fauser, assistant to Senator Collins; and Derek Maurer, assistant to Senator Bunning.

OPENING STATEMENT OF SENATOR EDWARD M. KENNEDY, CHAIRMAN

Senator KENNEDY. Senator Sessions will join us shortly and we will proceed. The subcommittee meets this afternoon to discuss the Navy-Marine Corps equipment issues and needs in order to meet their future operational requirements. We will hear from two panels of witnesses. The subcommittee invited Admiral Vern Clark, the Chief of Naval Operations, to discuss the overall strategic context in which the Navy Department is making specific hardware choices in the budget and the future years defense program and how the

Navy budget supports fielding a 21st century capabilities-based Navy.

On the second panel we will hear from four witnesses about the specific equipment programs that will support the Department of the Navy's 21st century capabilities: Major General William Whitlow, Director of the Expeditionary Warfare Division; Rear Admiral Phillip Balisle, Director of the Surface Warfare Division; Rear Admiral Paul Sullivan, Director of the Submarine Warfare Division; and Rear Admiral Michael McCabe, Director of the Air Warfare Division. I welcome each of our witnesses and look forward to their testimony.

I believe the world we face will continue to be one of uncertainty and unrest. Therefore, I continue to believe that greater emphasis should be placed on lighter, more lethal forces and on mobility forces. We have seen proof during the last year that this is a job at which the Navy and Marine Corps excel.

However, we must not let the outstanding performances by the Navy and Marine Corps distract our attention from some very real problems that face the sea services. This subcommittee has been working diligently with the Department of the Navy to address some of the very important problems, including improving fire support capability, organic Marine Corps fire support and Navy shore fire support, and augmenting our mine countermeasures capability both for sea and land combat.

I note for the record this subcommittee has taken the lead in Congress in ensuring that the Navy and Marine Corps improve existing capabilities in these areas, in many cases over the objections of senior Defense and Navy Department officials.

Unfortunately, we are seeing early signs that the Navy Department may be lapsing into previous unacceptable behavior. Some of the instances that may be forming a pattern are:

- Cancelling the planned and attack destroyer, the DD 21 program. DD 21 was intended to be a multi-mission ship. It was primarily aimed at meeting the Navy surface fire support requirements for the Marine Corps. DD 21 was to have been the first ship in a class of 32 ships, with delivery starting fiscal year 2010.

  Marine Corps officials had previously testified that nothing short of the capability of the planned DD 21 with two 155-millimeter guns would meet the fire support requirements.

  With the new DD(X) program, there is no firm commitment in the new future years defense program to build anything other than a demonstration ship using reseach and development (R&D) funding. It is not clear when or if the future years defense program (FYDP) would lead to meeting the Marine Corps fire support needs.
- Terminating the fire support missile program, the Land Attack Standard Missile (LASM). The LASM program was a program designed to use old surface-to-air missiles to provide some fire support capability, particularly at longer ranges. LASM was intended to be an interim system that would have been replaced by a new system, the advanced land attack missile (ALAM) system. Last year it appeared

that the Navy was cancelling ALAM. However, we could not tell for sure since the budget request did not give any information about fiscal years after 2002. This year it is clear the Navy is cancelling both the ALAM and the LASM.

• Cancellation of the Shallow Water Minefield Breaching System. The Navy decided last year to terminate the Shallow Water Assault Breaching System and distributed explosive technology, the Shallow Water Mine Clearance System. In part, they based this decision on the fact that the systems were too bulky to be carried continuously aboard ship and the lanes cleared through the minefield would not be wide enough.

The Navy made this cancellation in spite of the fact that the Navy has no near-term alternative to provide this capability. It is hard to understand why having no capability in this area would be better than at least having some capability, whatever the shortcomings.

• Retiring the U.S.S. *Inchon* mine command and control ship. Several years ago, with significant pressure from this subcommittee, the Navy decided they needed to have a large aviation-capable ship that would be dedicated to mine countermeasures. They converted an older amphibious ship, the U.S.S. *Inchon,* to this duty. While the ship served the purposes for which it was intended, the fact that it was an older ship and was probably not the highest on the Navy maintenance priority list caused an erosion in the material condition.

Within the last year, the crew experienced a fire on the ship, with one person killed. Because the Navy has decided that fixing this ship would be too expensive, they are retiring the ship with no immediate replacement. Navy officials have said that in the interim they would use one of the amphibious ships in the regular fleet in case they need to conduct dedicated minesweeping operations.

This was the position we were in before the subcommittee began pressing the Navy to make a significant mine warfare improvement in the early 1990s.

Unfortunately, there are other examples I could cite, but in the interest of time I will not. Each of these actions taken individually may have an explanation. However, taken as a whole, I fear they are part of a pattern of the Navy Department's walking away from their funding of the very capabilities that make the Navy and Marine Corps team so relevant in today's world.

If there is a new national military strategy that is charting a new course for the Navy-Marine Corps team, we need to hear about it and understand it. If there is not, we need to ensure that the Department of the Navy does not march down a path of incrementally divesting capability without a thorough understanding of where these actions would take us. I hope we can explore these and other issues with Admiral Clark today.

During the second panel we will hear from individual warfare area sponsors more specifically about the capabilities that this budget supports.

Before we begin with Admiral Clark, I would be glad to recognize Senator McCain.

STATEMENT OF SENATOR JOHN MCCAIN

Senator MCCAIN. Thank you, Mr. Chairman. I will be very brief.

I welcome Admiral Clark and the next panel of witnesses. Admiral, I am very concerned from a macro sense the lack of proposed increases in shipbuilding. I had the privilege along with nine of my colleagues to visit the U.S.S. *Theodore Roosevelt* and I was proud of the fact that their morale was so high. It was an exhilarating experience. We also know that they set a record for longest time at sea.

If you believe that there is a possibility of further crises like this around the world in the war on terrorism, it seems to me it has been made obvious that we do not have enough aircraft carriers. I hope in your remarks you can address that issue. Admiral Blair, I believe, made similar comments recently as we were left uncovered in certain areas as far as a carrier presence is concerned.

So I am concerned about the rate of overall shipbuilding and I will have some specific questions. But I think there are many lessons we have learned from this latest conflict and one is that there needs to be air power from ships available for the area commanders to use when absolutely necessary.

Thank you, Mr. Chairman.

Senator KENNEDY. We always welcome the former chairman of our committee and now the ranking member, Senator Warner.

Senator WARNER. I join you in welcoming our witnesses.

Senator KENNEDY. We welcome any comments that you would like to make. Before you begin, Admiral Clark, I would like to recognize our subcommittee's ranking member, Senator Sessions.

[The prepared statement of Senator Sessions follows:]

PREPARED STATEMENT BY SENATOR JEFF SESSIONS

I thank our Chairman, Senator Kennedy, for scheduling today's hearing and join him in welcoming Admiral Clark, the Chief of Naval Operations, and his requirements officers.

Our men and women of the Navy will depend on the strategy, doctrine, and equipment that we will be discussing today to carry out their missions. The strategy and doctrine must be sound. The equipment must be the best we can provide and it must be provided in sufficient quantities to make a difference.

We have a great challenge before us. The Department of Defense decided during the 2001 Quadrennial Defense Review to adopt a capabilities-based approach to planning instead of using a threat-based approach. Tomorrow's force must have the capability to handle the most challenging scenarios of the future. While it is prudent to understand the lessons learned from Operation Desert Storm, previous conflicts, and of the current war on terrorism, it is imperative that we resist the temptation to equip tomorrow's forces based solely on lessons of the past. We do know from experience that the one thing we cannot predict is the nature of the next conflict.

We also know, from over two centuries of operations, that a strong Navy and Marine Corps are vital to national security. The American people have seen vivid images on their televisions and in newspapers and magazines of the Navy and Marine Corps conducting strikes in Afghanistan. These vivid images underscore, once again, the importance of ships and marines at sea that can respond quickly to the operational commander's requirements and conduct continuous joint combat operations.

The Navy and Marine Corps team's ability to provide forcible entry and to strike quickly and with deadly accuracy deters potential adversaries from taking offensive action. The men and women of the Navy and Marine Corps require information superiority to carry out the full range of missions from forward-deployed presence to full scale war. This information superiority provides strategic and tactical advantage and enables rapid, precise, and effective action.

Presence, and the resulting information superiority, is possible through our ships and aircraft exercising freedom of navigation in the littorals and on the high seas throughout the world. Forward deployed ships provide the sovereign territory from which power can be projected on short notice. They provide the regional commanders in chief a rapidly scalable and sustainable range of options to support our national interests.

The requirements for equipment on those ships and aircraft are researched, developed, tested, and then procured to support anticipated Navy and Marine Corps missions. Every development and procurement program attempts to provide what is needed to meet a valid military requirement. Decisions on the capabilities and reliability provided by a given program are often made years before the equipment is fielded.

Requirements officers and program managers face a number of challenges in providing the required equipment. They must decide whether to: upgrade aging equipment or buy new; develop equipment or buy off-the-shelf; provide exact specifications or provide performance parameters; design the equipment to accept rapid technology changes or delay procurement to provide added capability; and fix the cost for development or provide cost incentives for improved development performance. They look for ways to shorten the acquisition cycle and leverage funding from other programs.

The requirements officers' newest challenge is to adjust their programs to provide a *specific capability* rather than to provide a *counter* for a specific threat. *Our challenge* is to review the development and procurement proposed in this budget request to ensure our forces are adequately equipped for future operations. The most common way to evaluate programs for this type of review is to compare a future capability requirement to the program cost and performance indicators. Although it is easiest to make evaluations from the perspective of the individual program or its specific warfare area, future operations require us to broaden our perspective to include evaluation of how the capability supports joint, coalition, and other warfare specialty operations.

The following are key questions which will assist us in these reviews and evaluations:

1. Will Navy and Marine Corps plans for mine warfare capabilities enable timely access for joint operations?
2. What is the Navy's plan for ensuring P–3 and SH–60 aircraft capabilities and availability for joint and coalition forces?
3. Is the plan for modernization adequate to support the tempo and nature of expected operations, given the lagging plans to buy new ships and aircraft?
4. What capabilities directly support joint and coalition operations, and should the proposed capabilities include seamless communications and operations with Navy and Marine Corps operational units?
5. Can the Navy's plan to provide land attack weapons in support of joint operations be accelerated?

Again, welcome to our witnesses today. I look forward to their testimony.

Senator SESSIONS. Mr. Chairman, I also have a statement from Senator Collins.

[The prepared statement of Senator Collins follows:]

PREPARED STATEMENT BY SENATOR SUSAN COLLINS

Thank you Mr. Chairman. I would like to thank the distinguished chair and ranking member for calling this very important hearing on the topic of Navy equipment required for fielding a 21st century capabilities-based Navy. As we predicted, the battleground and warfighting requirements are changing and so must the naval forces of today. As I have stated many times, seapower is among the most essential components of our national security posture and an important part of ensuring the U.S. meets its global commitments.

Currently, our naval forces are providing immediate access and forward-deployed combat power, 24/7, in support of Operation Enduring Freedom, but our current capabilities and equipment must evolve as the threat continues to evolve. Our naval forces of tomorrow must stand ready to assure access and to project joint and combined power in support of national policy.

The fact is that we will face a variety of challenges in the 21st century. These challenges, such as cyberwarfare, weapons of mass destruction, and continued international terrorism, define not only an unpredictable future, but one that will require our naval forces to operate with new deterrence options and require a significant investment in next-generation research and development capabilities and platforms.

These platforms and capabilities will have to be survivable, cost effective, and agile enough to allow for a highly capable, easily maintained, and modernized force for years to come.

These capabilities, and the fact that two-thirds of the world's surface is covered by ocean, make a compelling case for robust naval forces. Forward presence, however, requires that our ships, subs, and aircraft are available and ready to deter, fight, and win. I have said and will continue to state, that in order to meet the challenges of the 21st century we must recapitalize and invest in the naval forces of tomorrow today!

America's national security demands that we recapitalize our Navy today. President Bush and his administration have identified this global war on terrorism and homeland security as our highest priorities. As we in Congress work with the Bush administration to defend freedom, I will continue to encourage the replenishment of our naval fleet as the cornerstone of this global defense.

We cannot continue to defer this investment year after year, as we are just slipping deeper and deeper into a procurement hole, and that is why we must look at all of the resources available in the Department of the Defense's budget, including the Defense Emergency Response Fund (DERF), or contingency fund, to begin to address this egregious shortfall.

If we continue to underinvest in our critical naval forces—i.e., our naval shipbuilding and research and development accounts—the future force is at risk. Therefore, I am convinced there will be a need for even greater reliance on our naval forces as joint operations emerge to provide sovereignty to our fighting forces. Proof is in our current operations in Afghanistan. For these reasons and many others, I share the view of many of my colleagues that we must recapitalize our fleet today to ensure that America retains her maritime power in the 21st century.

I will close by welcoming each of the distinguished witnesses to the committee, and I look forward to working with each of you in the weeks and months ahead, to not only bring the procurement rates of our platforms up, but also to ensure that we are investing in the force of tomorrow. I look forward to your testimony this afternoon. Thank you, Mr. Chairman.

Senator KENNEDY. Thank you. Admiral Clark, I enjoyed getting a chance to talk with you recently and valued those conversations and insights. We welcome you here before the subcommittee and look forward to your testimony.

STATEMENT OF ADM. VERNON E. CLARK, USN, CHIEF OF NAVAL OPERATIONS

Admiral CLARK. Thank you very much, Mr. Chairman, Senator McCain, and Senator Warner. Good to see you this afternoon. Speaking on behalf of the rest of the team in Panel Two which is going to be here in a few minutes and the members of our staff, we appreciate the chance to come up and see you this afternoon.

Mr. Chairman, I have submitted an extensive statement that addresses a number of the things that you spoke about and, with your concurrence, I would ask that we submit that for the record. Since I appeared before the full committee on March 7, I will keep my opening comments brief.

Senator KENNEDY. Without objection, that is so ordered.

Admiral CLARK. I want to start by just saying that it is clear to me, reinforcing Senator McCain's comments, that our success in Operation Enduring Freedom has been caused first and foremost by the dedication and the professionalism of the men and women who are serving in our Navy, certainly the finest navy in the world, second to none.

Second, I believe that our success in Operation Enduring Freedom is the result of the significant investments that have been made in current readiness and manpower, improvements to those accounts, and those changes supported by this committee and the rest of Congress.

I also believe that this war on terrorism is certainly a powerful demonstration of why our country needs a navy. I believe that it is a vivid illustration of the relevance of operating from the maritime domain, the need for maritime dominance. We are taking our Nation's sovereignty to the far corners of the Earth, specifically off the coast of Pakistan and Afghanistan, and the beauty of that is that we are doing it without a permission slip. We are doing it without getting the permission of some country that can say yes, you can, or no, you cannot.

To me that means that "anywhere, any time" is not just a bumper sticker. In the case of the United States Navy and its number one partner in jointness, the United States Marine Corps, it is a reality.

Now, when I appeared before the full committee on March 7, I talked about the fact that the Navy and Marine Corps team had been a key player, and I am sensitive to the use of words that sound self-aggrandizing, that sound like we think that we might be able to do it all by ourselves. I think I want to emphasize that none of the services in my view can do it all by themselves and certainly we cannot.

But I do believe that Operation Enduring Freedom has been an excellent example of the things that I have already spoken to and have demonstrated, that the United States Navy and its ability to operate out of the maritime domain has made it a key factor in the successes that we have realized in operations in Afghanistan. From the issues of tactical strike to being a lead player in overland manned surveillance, not something that you would normally think about when you talk about the United States Navy, a key player on the ground side—many people are unaware of the fact that we had 750 Navy people on the beach, central to the Special Operations Forces mission, from *Kitty Hawk* to our own Special Forces.

Then, of course, we are a leader in the maritime coalition. At times there have been upwards of 105 ships, Navy ships from the various nations, present in those operations. They want to be partners, first and foremost, with one Navy, and that is the United States Navy.

Moreover, I believe that this war has been showcasing what it means to be a capabilities-based Navy. It is highlighting our flexibility, precision, reach, and persistence. Admiral Mullen spoke before this subcommittee a few days back and talked about the fact that 80 percent of the Navy strike sorties, the operations conducted, when the sorties were launched the pilots were unaware of the specific targets that they were going to hit; that 93 percent of Navy TACAIR ordnance was precision guided—certainly reemphasizing the importance of the decision to focus on precision after Operation Desert Storm.

Then, more significantly, there is the issue of combat reach. The average sorties have been 7 hours in the cockpit for fighter pilots flying missions over Afghanistan, sometimes as long as 12 hours.

Then the whole issue of persistence, one of my favorite words these days, focusing on the importance of being there, the importance of being able to respond at a moment's notice, and especially when you have thousands of Americans committed to a particular operation.

This year's budget, the budget that we are here to talk about today, was constituted with some real tough choices, I believe the correct choices, given the top line that we had to work with. It does prioritize current readiness. It does prioritize investments in manpower. When somebody asks the reason why, as I talked about some on March 7, it is because our Navy must be ready to go to sea, fight and win on a moment's notice. That is what these priorities do.

That being said, it is very clear still that we have to keep our eye on the future. We must understand that in order to have a Navy in the future we have to have ships and we have to procure aircraft. Clearly, this budget does not have us where we would like to be and where we would desire to be, and that is the biggest challenge that we face in the procurement side in our Navy today.

I do want to say that I do not believe that it is all about numbers. I do believe that numbers count, numbers have a quality all their own. There is no question about that. But it is more important that we buy the right kinds of capabilities in the ships that we are procuring in the future; and that is what we need to focus on and ensure that we are doing.

We are fully engaged in transforming this Navy into a 21st century fighting force, and to that end we have terminated some programs. Mr. Chairman, you have mentioned some of those in your opening remarks. We have terminated 7 programs and restructured 12 others over previous years. We have done this to capture efficiencies, but also to prioritize the investment in the areas that we believe will produce for us the most warfighting capability.

When I think about the future and I think about where our Navy is going in the future—and this is not tomorrow's Navy, but it is a Navy of a generation away—I think about a Navy that has more of the kinds of capabilities that I think that we are demonstrating today in Afghanistan. That is about flexibility and precision and combat reach and persistence and expeditionary mobility.

I believe the future is about Joint Strike Fighter, the Littoral Combatant Ship, and DD(X), and I believe that these platforms will play huge and important roles in increasing our ability to dominate a battle space in the future and improve our combat effectiveness. It is about CVN(X) and it is about F/A–18E and it is about the new submarine programs. It is about research and development into our future.

I would just say that, with regard to DD(X), the output from the research and development in this program will produce a family of ships that is going to define what the United States Navy is all about for, in my opinion, the next four decades, and it is of utmost importance and we solicit your support in this regard.

I believe that DD(X) and the R&D that is in DD(X) will also help our maritime partner, the United States Coast Guard, in its modernization and transformation efforts.

Further, to the greatest extent possible, new technologies developed along the way must be incorporated into legacy platforms, ensuring that we transform the hulls that we own today. I think it important to point out that over 60 percent of the hulls that we own today will be in our Navy in the year 2020. We must ensure

that we take the steps to modernize that capability so that they are viable throughout their lifetime.

So for the future, I see a Navy that is all about being able to climb into the ring with an enemy. We are about ensuring access. It means that we must be able to climb in the ring with an enemy and operate in high-risk environments, and the littoral can be a high-risk environment, with robust mine warfare and shallow water ASW capabilities.

I see a Navy in the future that works more smoothly and effectively with our number one partner, the United States Marine Corps, in our newly designated expeditionary strike groups. I hope that we get a chance to talk more about that in the question and answer session.

I see a Navy that plays a key part in homeland security and missile defense, and I see a Navy that is fully networked, with all the implications that suggests even more responsive and even more lethal in the future.

In short, I see a Navy more effective than the Navy that we have today, a capabilities-based Navy that, like today, is preeminent in the maritime domain and can fight and win to preserve the blessings of peace that we enjoy in our country today and that we want to enjoy in the future for our children and our children's children.

Mr. Chairman, I thank you again for the chance to be with you today and I look forward to responding to your questions.

[The prepared statement of Admiral Clark follows:]

PREPARED STATEMENT BY ADM. VERNON E. CLARK, USN

Mr. Chairman and members of the subcommittee, I appreciate this opportunity to appear before you. Your support of America's Navy has been vital to accomplishing our missions around the world—including swift and effective response to the attacks of 11 September 2001—and I thank you.

THE STRATEGIC CONTEXT

The global war on terrorism is America's first war of the 21st century. Violent horizons lie before us, harboring profound challenges including the threat of cyberwar, weapons of mass destruction, continued international terrorism, and the havoc accompanying failed states. Importantly, such threats do not replace the specter of state-on-state conflict. They add to the danger and uncertainty, providing new sparks to already combustible situations.

This terrorist-filled world is more dangerous in many ways than that which existed when we faced the global strike and sea denial capabilities of the Soviet Union. We no longer counter a peer adversary that maintains order within its geopolitical orbit. Rather, the international landscape today is comprised of multiple actors whose interests form a complex pattern of interwoven and explosive tensions.

Potential adversaries today include other states, informal alliances of states, and terrorist elements that range from state-sponsored to state-opposed. Such terrorists may be local actors or integrated into global federations dedicated to the export of killing. Catalysts motivating potential enemies include religious fervor, political ideology, aspirations of regional dominance, dedication to fomenting domestic revolutions and, conversely, efforts at sustaining domestic order by deflecting internal tensions outward.

Little is certain in this new world beyond the fact that such tensions can be expected to lead to repeated crises, quite often with minimal warning or predictability regarding size, location, or intensity. It can also be presumed that given America's peerless military power, strikes against our Nation, people, or interests will be delivered in an asymmetric manner, such as the attacks that took place last September in New York and Washington, or the previous October in Yemen against U.S.S. *Cole*.

THE NAVY'S ROLE IN THE 21ST CENTURY

Forward deployed naval forces will continue to be a vital part of America's defense as we move into the 21st century, a time during which the range of threats will in all likelihood grow in volatility and unpredictability. Thus America's Navy must remain prepared to conduct combat operations anytime, anywhere with maximum effectiveness and minimum risk.

Yet accomplishing our missions has become steadily more challenging. Our Navy's force structure declined 41 percent since 1991, from 538 to 315 ships, while the global war on terrorism has increased the call for forward-deployed naval forces. The introduction of a new class of smaller combatant—the Littoral combat ship (LCS)—will help ease the strain and could lead to a war-sustaining fleet of approximately 375 ships.

The current pace of operations is very high. Approximately half of the fleet is at sea every day. Nearly one-third of the fleet is deployed forward around the world, while the remainder is operating off our coasts, conducting training or homeland defense missions with the United States Coast Guard.

In view of this taxing requirement, we are exploring innovative methods of increasing the presence and striking power of naval forces. One construct is to complement amphibious ready groups with surface combatants and submarines, producing expeditionary strike groups equipped to destroy terrorist elements wherever they may be found.

We are also experimenting with flexible manning techniques to produce greater efficiencies in conducting prolonged on-station missions, such as guarding international straits or other locations of exceptional strategic value.

At home, fleet commanders are taking measures to minimize the loss of readiness that traditionally occurs between deployments. Historically, deployed readiness has been achieved at the expense of the non-deployed segment of our force structure. That is no longer acceptable and, thanks to Congressional support, we have made significant progress over the past several years in correcting long-standing shortfalls in spare parts, munitions, and training.

Fiscal year 2003's budget submission continues that trend, adding $2.7 billion to manpower accounts, $2.8 billion to operations and maintenance accounts, over $1 billion to research and development, and over a half billion dollars to procurement. We have also programmed $2.6 billion to buy munitions and $1.3 billion for homeland defense.

NAVY TRANSFORMATIONAL CONCEPTS

Sustaining warfighting effectiveness in this uncertain strategic environment will require continued global presence by sovereign naval forces that are prepared to counter whatever capabilities the enemy may bring to bear. Quantity has a quality all its own in this regard, and our Navy will remain on-station around the world, prepared to fight and win.

The dynamic and unpredictable nature of potential enemies demands that we continually develop new and more effective capabilities to prevent crises and—should deterrence fail—project offensive and defensive power ashore. The 21st century Navy must be strategically and operationally agile, technologically and organizationally innovative, networked at every level, highly joint, and effectively integrated with allies.

Three core operational concepts are key to achieving Navy transformation: the application of precise and persistent global striking power, the ability to assure access to the littorals and project defense overland, and the capability to conduct sustained operations from sea bases.

Precise and persistent global striking power is the offensive element of the 21st century Navy. Its effectiveness is derived from network-centric operations in which platforms and sensors are fully integrated to form seamless warfighting knowledge. Situational awareness generated from this network provides rich understanding of the adversary that enables the tailored application of power, allowing our forces to sustain the initiative, disrupt enemy timelines, and deliver operational success.

Concurrently, the ability to assure access to the littorals and project defense overland provides battlefield dominance, assuring allies and deterring adversaries. Such battlefield dominance exploits expeditionary sensor grids that sweep from seabed to space, cueing coordinated air, surface and subsurface combatants to neutralize enemy threats. This element of naval power relies upon control of the seas, allowing us to guard the flow of trade while identifying, tracking, and intercepting threats long before they reach our shores.

Finally, leveraging the mobility and security of ships on the vast oceans in the form of sea basing assures the effective projection of sovereign American power. At

the operational level of war, sea basing serves as a secure foundation from which to project expeditionary warfare, while minimizing the requirement to stage vulnerable forces and supplies ashore.

Achieving Navy transformation will include both new procurement and aggressive modernization. Nearly 60 percent of the ships in the Navy today will be in the fleet in 2020. Thus a significant portion of Navy's transformation will occur within existing hulls, placing an emphasis on new systems and capabilities that can be inserted through modernization. These upgraded platforms will complement new ships and aircraft joining our fleet.

Examples of exciting new technologies that will accelerate our transformation toward a fully networked Navy include the DD(X) destroyer and its related family of ships, Joint Strike Fighter, unmanned aerial vehicles, unmanned underwater vehicles, Tactical Tomahawk, advanced gun system, theater ballistic missile system, cooperative engagement capability, Navy-Marine Corps intranet, and SSGN strike submarine, among others. These systems, in turn, will be employed in innovative ways via concepts validated in the fleet battle experiment series coordinated by the Navy Warfare Development Command in Newport, Rhode Island.

As it progresses, the process of Navy transformation will yield a dispersed and networked fleet that enhances deterrence, assures access, conducts precision strikes, gathers real-time intelligence, exercises joint command and control, and leverages the priceless advantage of sea control. In short, it will be a fleet that serves as the leading edge of America's defense—around the world, around the clock.

NAVY READINESS AND PROCUREMENT

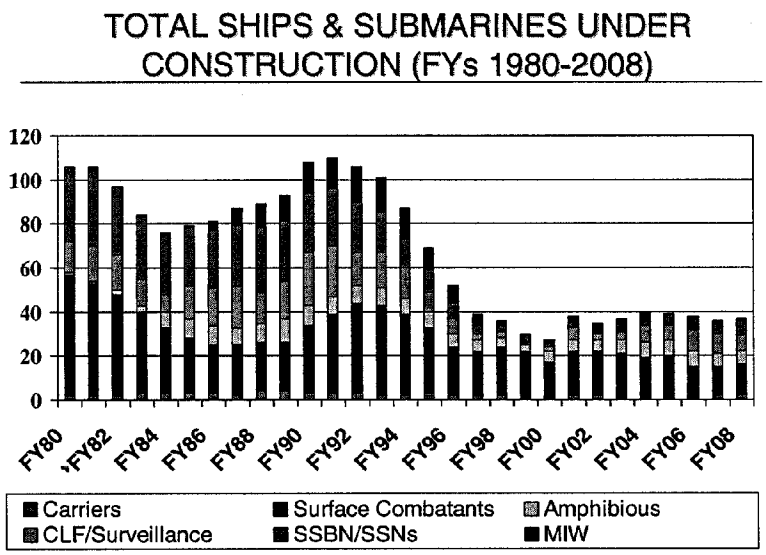
As promised in previous testimony, the Navy's budget funds manpower and current readiness first and fullest because those accounts are key to mission accomplishment around the world. Our operational success in Afghanistan is a direct reflection of these investment priorities, as supported by Congress.

To sustain the size of the current fleet, we would need to buy an average of 180–210 aircraft and 9 ships a year. We are currently procuring significantly less than that. The fiscal year 2003 budget will, if approved as submitted, provide just 5 ships and 83 naval aircraft.

Harvesting efficiencies within our Navy is key to increasing procurement and we will focus a major effort toward that goal over the next 2 years. Failure to free such resources would have a profoundly negative effect on the fleet.

Naval aviation, in particular, would suffer as that community faces the greatest near-term challenges. Our current aviation force contains the oldest mix of type/model/series aircraft in naval history. Yet these aircraft are being tasked to unprecedented levels in on-going conflict. The F/A–18 force, for example, has been flown well in excess of planned utilization rates and more than 300 F/A–18 aircraft will require service life extensions earlier than planned. The best way to address such problems is to introduce new aircraft into the fleet as soon as possible

While our surface and subsurface combatant fleet is, on average, fairly young, the rate of ship recapitalization bears watching. The following chart illustrates the dramatic decline in authorized ships since 1980.



The impact of the current low procurement rate goes beyond force levels. It adversely affects the stability of our defense industrial base, and we are paying a premium in program cost due to the small number of units being built.

On a more positive note, maintenance and modernization efforts are progressing well due to solid increases in current readiness funding over the past several years. The fiscal year 2003 budget requests the following additional dollars over the fiscal year 2002 budget: $804 million for ship operations and maintenance, $119 million for flying operations and maintenance, $276 million for combat and weapons support, and $310 million for base support.

Additionally, the ships and aircraft being developed are superb and will serve us well as the core capability of our force in the coming decades. DD(X), CVN(X), JSF, F/A–18E/F, LPD–17 and the *Virginia*-class SSN present impressive technological leaps in warfighting capability, innovation, and reliability. Program specifics include:

DD(X)/CG(X)/LCS. Maritime dominance in the 21st century requires a naval force capable of projecting power and defeating anti-access threats. To accomplish these missions, the future surface naval combatant force will consist of four elements: DD(X) advanced multi-mission destroyers that provide precision strike and volume fires; CG(X) advanced cruisers to achieve sustained air superiority against airborne threats and ballistic missiles; agile Littoral combat ships to defeat enemy defenses such as mines, small boats, and submarines; and today's Aegis fleet kept current through the insertion of developing technologies. Cutting-edge systems integral to this family of ships include the advanced gun system, multi-function radar/volume search radar, integrated power system electric drive, and revolutionary hull forms.

CVN(X). The fiscal year 2003 budget provides RDT&E and advance procurement for the first CVN(X). CVN(X) will replace U.S.S. *Enterprise* in fiscal year 2014 when that ship is in her 53rd year of commissioned service. Design objectives for the CVN(X) class include a significant reduction of total ownership costs during the carrier's 50-year expected service life, reduced manning, and incorporation of a flexible infrastructure that will allow the insertion of new capabilities as they evolve.

JSF. The Joint Strike Fighter contract was signed in 2001. It will provide an aircraft with unprecedented stealth and range to the fleet as part of a family of tri-service, next-generation strike aircraft with an emphasis on commonality and technological superiority at an affordable price. The fiscal year 2003 budget supports procurement of the initial variant in fiscal year 2006.

F/A–18E/F. The F/A–18E/F will replace older F/A–18s and all F–14s. There is extensive commonality of weapons systems, avionics, and software between F/A–18

variants, and the infrastructure supporting the Super Hornet builds upon existing organizations.

LPD–17. Although we have experienced design and production difficulties with the lead ship, we remain fully committed to this key program. LPD–17 supports vital littoral warfighting requirements and promises relief from the escalating costs of our aging amphibious ships. The LPD–17 class will replace four older classes of ships and serve as a central element of future amphibious ready groups/expeditionary strike groups. We need to accelerate development of these ships as rapidly as design and production facilities will allow.

Virginia-class submarine (SSN–774). This class will replace *Los Angeles*-class (SSN–688) attack submarines as they leave the fleet. SSN–774s are designed for multi-mission littoral operations, as well as traditional open-ocean anti-submarine and anti-surface missions. They will also incorporate new technologies as they become available, ensuring future effectiveness. The fiscal year 2003 budget procures one submarine per year and continues RDT&E. This pace of procurement will have to be increased beyond the current FYDP to maintain the required attack submarine force level over the long term.

SAILORS: OUR MOST VALUABLE ASSET

Winning the global war on terrorism is our primary goal, and Navy's fiscal year 2003 budget prioritizes manpower and current readiness above future readiness and infrastructure needs for that reason. As noted earlier, the fiscal year 2003 budget submission adds $2.7 billion to manpower accounts over fiscal year 2002 levels and an additional $2.8 billion in operations and maintenance funding.

Thanks to the unequivocal support of Congress—including increases to base pay and bonuses, retirement reforms, and better medical benefits—sailors are staying Navy in record numbers. In 2001, we retained 58 percent of all eligible sailors at the end of their first enlistment, 67 percent of sailors with 6–10 years of service, and 83 percent of sailors with 10–14 years of service. Additionally, 1,512 more sailors were advanced in 2001 than the year before.

Enlisted Reenlistment Rates
(As of 28 Feb 02)

Oct-Feb	Zone A (<6 years)	Zone B (6+ to 10 years)	Zone C (10+ to 14 years)
FY00	49.7%	62.8%	81.8%
FY01	58.8%	67.6%	83.5%
FY02	64.4%	75.5%	86.2%
FY01-FY02 Comparison	**+ 5.6 points**	**+ 7.9 points**	**+ 2.7 points**

The Navy also met our overall recruiting goals in fiscal years 1999, 2000, and 2001, and this year we are well ahead of the record-setting pace of fiscal year 2001. Thanks to these successes, battle groups are deploying better manned than ever before.

We are winning the battle for people, but important challenges remain. Officer retention in most line communities is below required levels and recruiting shortfalls exist in officer specialty areas and critical enlisted ratings.

We are also dedicated to continuing the fight against attrition. The annual attrition rate for first-term sailors has been reduced from over 14 percent to 10 percent since 1998, retaining thousands of young men and women for service. Yet we can—and will—do better. Concerned, involved leadership is central to minimizing attrition without compromising standards. To make this happen, I have directed Navy leaders to take every measure to ensure our people succeed and prosper.

Key to achieving that goal is cultivating a command climate throughout the Navy that offers plentiful opportunities, encourages participation, and is conducive to personal and professional growth. We are striving to minimize the increased wartime operational tempo of the fleet via careful planning and innovative training. This is the first time in modern history that the Services have faced a prolonged conflict with an all-volunteer force, and we must protect the integrity of our fleet.

Two initiatives have been launched during the past year to help us fully utilize our sailors' potential:

Task Force EXCEL (Excellence through our Commitment to Education and Learning) is making impressive progress in developing processes, policies, and structures to fully realize the capabilities of every sailor. Seventeen ratings are currently under review to find ways to expand professional learning, earn certifications that are recognized by the civilian community, and enhance personal growth. The goal is to provide a comprehensive development plan for every sailor based upon education that takes place in the classroom and on the internet as part of a culture of continual learning.

Project SAIL (Sailor Advocacy through Interactive Leadership) is a new program that will have a major impact on how the Navy assigns our personnel. Using a team detailing process that includes sailor advocates, enhanced internet connectivity, and billet incentivization, Project SAIL will strengthen efforts to find the best set of orders for every one of our sailors, leading to assignments that are both professionally rewarding and personally fulfilling.

The shared focus of these initiatives is an appreciation that combat success in the 21st century will rely heavily on knowledge management derived from a highly educated and motivated volunteer force, a force that is empowered in their career decisions and encouraged to contribute to a climate of warfighting excellence.

CONCLUSION: A COMMITMENT TO VICTORY

Our national leaders have repeatedly told the American people that the war against terrorism will be neither easy nor short. In addition to targeting international terrorist networks, the President has singled out states sponsoring terrorism for military action should they threaten international peace.

This struggle promises to be global in scope and simultaneous in execution. It will require the full might of America's armed forces. In pursuing victory, the United States Navy—forward-deployed, highly capable, and poised for action—will play a leading role.

I thank the subcommittee for your continued strong support of our Navy and our sailors. Working together, I am confident that we will win the global war on terrorism, leading to a more stable and peaceful world.

Senator KENNEDY. Thank you very much, Admiral Clark.

I ask Senator Sessions if he wants to say a word.

Senator SESSIONS. Thank you, Mr. Chairman. I am sorry I missed the beginning.

I would just say that we know that we did not achieve as much as we would like in shipbuilding, new ships, and that the QDR rate is not being met. You made a decision under the circumstances that I suspect was the right decision, which was to focus on readiness and other matters, not to cut that in order to build a new platform. So I guess our hearing today will be how are you doing? Are you actually improving your readiness, new equipment, technologies and enough? Or is that just one more thing that we are not reaching the appropriate level?

Thank you, Mr. Chairman, for having this hearing and thank you for your leadership in general. I know you care about this issue. You have studied it for many years and we appreciate you.

Senator KENNEDY. I will ask the staff to time 7-minute rounds for questions if you would, please.

Admiral, in our conversation that we had yesterday I talked with you about the fire support capabilities for the Marines. That was outlined to this subcommittee a number of years ago and we have tried to follow this issue closely during this time and during the time when Senator Cohen was the chairman of the subcommittee. There was a great reliance on the DD 21 in terms of the fire support for the Marines.

But nonetheless, we saw the cancellation of the DD 21, now it is the DD(X). It is going to be later, uncertain as to what is going

to be the follow-on, and that is going to take us down into the out years, 2011 to 2012, in terms of the DD(X).

What can you tell us? Those requirements are still there. They are enormously important, obviously, in terms of the Marines and their effectiveness. What can you tell us about this? The requirements have not changed. With the Navy program in terms of its support or filling that requirement, the 155-millimeter gun batteries which were on the DD 21, what can you tell us about how you intend to meet that particular requirement?

Admiral CLARK. Well, thank you, Mr. Chairman. I believe that DD(X) is vital to our future, as I said in my very brief opening remark. One of the key reasons is because of the existence of the new technology that exists in the gun system. When Admiral Balisle testifies on panel two he can talk to some of the detailed specifics of the programmatics. If you want to talk dollars and those kind of things, I do not have those kind of things with me.

But let me talk about the broader strategic approach to this. The requirements are valid. The Marine Corps has stated what kind of combat reach that we need. Today from our gun systems—and thinking about what we would do in an open session like this, our gun systems are incredibly—in DD(X) has an incredible improvement in combat reach, one of those characteristics that I discussed in my opening statement.

We need that capability. I have every expectation that we are going to down-select that ship this month. The acquisition executive has testified earlier to that objective, to down-select in April. That down-selection will lead to the development and the building of a ship that in this case will be done in research and development. But as our acquisition executive said recently, as this ship moves along successfully we fully expect it to then transition into a class of ships that we need in these new expeditionary strike groups that I talked about.

I believe that today's amphibious ready group does not have enough striking power in it. It needs the capability that we are going to bring to it by bringing cruisers or DDGs into it that have the ability to reach and strike with Tomahawks, that have the ability to better defend itself from air-to-surface attack; we are bringing submarines into the group that have the same type of capability.

It is all about responding to the challenges that exist to us in the future. Now, when we look at future systems—and you mentioned the cancellation of LASM—I believe that we have to look at the array of systems that we have available to us. General Jones has indicated that he very much would like to see us procure a system that the Army has for the Marine Corps and that is the gun system in the 130s, which brings that kind of artillery capability to the air and able to apply it in the battlefield.

We have Tomahawks and we are going to have the Advanced Gun System in DD(X). So one of the issues is how many systems do you need? My fundamental conviction is that we were overprogrammed. We had more programs than we can deliver. The analysis of LASM was that it was that it did not have the kind of combat effects that we needed to continue to invest in it.

I believe, in response to your question, that the requirement has not changed one bit. We have to have the kind of reach that we are going to deliver in DD(X) and other systems that are in the program.

Senator KENNEDY. Well, clearly with regard to DD(X) this is going to provide that kind of support. The real question is what is going to happen in the interim period. I guess I understand from your response that you believe, and as I understand speaking for the Marines believe, that you have sufficient kind of variety of support from other systems to meet that particular requirement.

That has been a requirement that the subcommittee has taken very seriously over a long period of time. It was one of the principal aspects of the DD 21 as well as the DD(X). My question really relates to what happens in this interim period of time to the support. It is a matter of concern to us.

A broader issue would be the general capability for what we call the forcible entry capability. In my opening statement, I listed a number of the program cancellations and restructurings that would cause one to conclude that we may be moving incrementally away from the credible forcible entry capability. We have limited ability to conduct fire support now. The actions taken last year, including the DD 21 cancellation, give little hope the Navy will be able to meet the Marine Corps' foreseeable fire support requirements.

We also raise the questions about the implications of the actions in terms of the mine warfare and where we are on this program, which has been something that we have talked on in terms of the mine warfare deficiencies as well.

I am just interested in whether we ought to be drawing any kind of conclusions if we say that the shore fire capability immediately is of continuing concern certainly to the Marines, and that the mine warfare still is very much up in the air. We have had responses that we have new technologies that we are looking at, but we have not heard very much of anything in this committee about real progress in that area other than some observations that, with the high altitude bombing now, we may be effective in bombing particular pathways in the entrance into certain kinds of areas. I do not know whether that is the answer.

But I suppose the question is, is there some flagging in terms of the determination for the forcible entry capability? If there is, then obviously that leads to other kinds of questions about the need for other kinds of advanced amphibious assault vehicles and amphibious assault ships and whether we could not buy other ships that are a lot cheaper, like cargo ships for example.

I am interested in hearing you out just on that issue perhaps for another minute or two, and then my time is up.

Admiral CLARK. Well, certainly it is a fundamental requirement, I believe, for this Nation to have a forcible entry capability, and I believe that the capability the United States Marine Corps brings to this Nation is vital. When you do not have, as we do not today, a long-range gun system, a system with the kind of combat reach we are envisioning in DD(X), it forces you to an approach, and that is what a capabilities-based force is all about. You bring whatever capability you have to whatever task that you have been given.

But it has required us to then utilize aircraft and in effect, if you talk to the Marine Corps, they will tell you they gave up their artillery years ago and substituted Marine air, because you did not have the kind of reach that they believed that they needed in order to execute forcible entry.

The joint world we operate in today, the Marines are going to be supported by combat air when forcible entry operations are required. So we are not flagging from that requirement. To the contrary, I want my comments to be interpreted that it is a priority that we fund and deliver DD(X) and that DD(X) becomes a class of ships that supports our expeditionary striking groups, that gives us the kind of capability that you speak to.

Senator KENNEDY. Thank you very much.

Senator Sessions.

Senator SESSIONS. Just to follow up on the DD(X), we went from DD 21, which had plans to move forward, to DD(X), which is more research, I suppose. Can you tell us whether or not the proposed ship is going to be better for this transition to DD(X) than it would have been with the DD 21?

Admiral CLARK. Well, I do not know how to answer that, Senator, because in the down-select and in the decisions we have made in tradeoffs in the program, I do not know how to distinguish specific equipments and components. For example, the analyses of the number of gun systems and so forth. I just do not, I have no way to predict what those are going to be. But I have every expectation of tradeoffs, and they are being done by a committee. I am not involved in that. It is part of the acquisition process.

But validating the requirement is for effective combat reach with the gun system. I have every reason to believe that the gun system is going to be there. I have every reason to believe—and I have testified to this statement—that the spec calls for this to be a ship with a very low radar cross-section. That is going to make it extremely difficult for an enemy to deal with. It has been talked about, a radar cross-section that is smaller than a fishing boat; that with a signature that it is so quietly operated that it is going to be like a 688 submarine, that the transformation to all-electric power is going to open up potentials for the future that we do not even see yet.

I have every reason to believe that this is going to be the ship with the technology that is going to deliver and that the ship is going to be the definer of the next four decades of what our Navy looks like.

Senator SESSIONS. I guess we have a delay in moving forward with it, which is a billpayer of sorts and is not totally insignificant. But you cannot say at this point that we are going to have a better vessel because of it?

Admiral CLARK. I have every reason to believe that it is going to be a great ship and it is going to deliver the capability that we need. I regret the delay, Senator——

Senator SESSIONS. Let me go back. I understand we are all confronted with realities.

The general concept for my thinking is that an older platform with a newer and better weapon system may be, at least financially, more critical for us than new platforms. How are we in

terms of our equipment making sure that our existing aircraft and vessels are equipped with the latest technology, and are you satisfied with our present stocks of weaponry? If we do not have bullets to fire in the gun, the gun is not very valuable. I am talking about the precision-guided munitions.

Admiral CLARK. Let me take the first part of that first question. There are limits to what you can do with an old platform. A good case would be to look at the alternative. If you decided that you were not going to build DD(X) and you were going to continue to build or you were going to invest in our older cruisers and meet the need with that kind of a system, you could not ever have the gun systems. But let us say you were going to try to do that.

As we move to the future and we study science and technology applications, one of the clear issues is that future solutions are going to require great power. As we look to potential breakthroughs in technology, power is always a limiting thing. So power limits what you are able to do in older platforms.

Then other things wear out inside of a ship. I have had the privilege and the challenge of steaming around when my first ship was a World War II destroyer.

Senator SESSIONS. I think you were responding realistically to the question I asked, but I will be a little more specific about it. I guess my concern is in the next year, in the next 18 months, do we have in place on ships that are going to be in the inventory for some years to come the capabilities that we ought to have on them, considering the funding problems we have?

Admiral CLARK. We have the systems on that we can have. We cannot create systems anew in a year, a year and a half. Your question gets to the heart of the readiness challenge: Are the ships going to be ready? They are, and let me tell you that we are eating away at a maintenance backlog that we had in the accounts, and the current readiness budget is allowing us to do that.

The second part of your question had to do with munitions. This budget expands the production capability so that we can buy the munitions, the precision munitions, that we need, and we earnestly need the support of Congress in the approval of that. Some of that has been done in the 2002 emergency funding and we need to continue that application of funding in the 2003 budget.

Senator SESSIONS. Well, they say that we may be moving to capacity at our plants for munitions, but why can we not build new plants if we need to? Are we at what we need for a sustained military operation? The world is looking awfully dangerous right now. We could find ourselves in a prolonged conflict with a lot more targets than we found in Afghanistan to utilize.

Do we need to think bigger, much bigger, in terms of what we need in terms of precision-guided munitions?

Admiral CLARK. I believe that, first of all, do we need to think bigger? We have and are making changes and the emergency funds are being applied to do that. So we are increasing our capacity. It is very important that we do that because we did not have enough capacity to meet, in my estimation, the needs. The judgment of the leadership supports that because the investments are being made to increase our ability to produce precision rounds.

Senator SESSIONS. Mr. Chairman, you have to have the bullets and the gun. We have the capability. We do not want to find ourselves in some very serious matter and not have all the munitions we could have.

In terms of the size of a $379 billion, a couple of billion dollars more to make sure that our stocks are very ample and would be a good investment, I think.

Admiral CLARK. If I could just follow up, there was an article that I saw in the paper today that went into some detail about JDAM, that we did not have enough, and it related to Kosovo operations. We need to make wise investments for the Nation, too. JDAM just came on line when we started in Kosovo. So a ramp-up is clearly the way this is going to be produced. You cannot suddenly have zero one day and then have 5,000 of them the next day.

So the investment being made has to be one that makes sense that we do not create a capability that then is going to go idle also. We need to reach the balance between the requirement and ramping up at a smart and effective rate that meets the requirement. I believe the investments that are being made today have us on that ramp. We must continue to analyze that to be sure.

Senator SESSIONS. I am thinking we need to leap up, not ramp up.

Senator KENNEDY. Senator Reed.

Senator REED. Thank you very much, Mr. Chairman.

Thank you, Admiral Clark. The Navy has a daunting challenge with legacy systems to try to harmonize them. But at least going forward, is your RDT&E consciously trying to make all of our new platforms interoperable, and not just within the Navy and the Marine Corps, but also with the other services, principally I would assume by information technology? Is that something that is conscious, deliberate, proceeding forward?

Admiral CLARK. Yes, sir, absolutely.

Senator REED. Can you comment on some of the aspects of that or some of the challenges that you face in that regard?

Admiral CLARK. Well, I can certainly. Interoperability—in order to take advantage of the technological advantage that the United States of America has, it is about information becoming knowledge. For us to do that, our systems have to be interoperable, and they are not all interoperable today. By that I am talking now about the power of second and third order interoperability.

For example, we certainly have interoperability in our forces today, but we see things that we could do in the future that will make us much more effective. For example, a pilot flying over Afghanistan that gets input from a Special Forces operator on the ground, that lases the target, and all this action takes place that we saw happen in Afghanistan.

The future will allow us to do this with the touch of a button, as opposed to verbal orders and those kinds of things. That is where we all want to go. We have to do this with web-based capability. We have mandated in our Navy, for example, that we are not going to spend money on applications that are not web-based in the future. You cannot afford to do that. The taxpayers' investment in our warfighting capability has to produce that kind of interoperability and that is where we are all going.

Senator REED. What is your perception of the other services in terms of linking up?

Admiral CLARK. A common objective. We have challenges with legacy systems and the issue always becomes how much do you spend on the legacy system to bring it up to how you would deliver it if you were procuring it today; it is a case-by-case basis, Senator.

Senator REED. Also, Admiral, you are experimenting with new types of hull designs, particularly for the littoral ships, the logistical vessels. Can you comment upon how that is going and what you see in the next several years about the deployment of these innovative hulls, like catamarans, etcetera?

Admiral CLARK. Yes, sir. Well, I believe I mentioned DD(X) and the family of ships and this concept has us spiraling the research and development result into three platforms; one of them is the Littoral Combatant Ship, the other will be the follow-on missile defense cruiser, the CG(X). Very clearly, we need a platform—and this gets to the chairman's concern and interest in mine warfare—that is able to operate in a near-land area that can take this on directly.

We have in the program the ability and we are working toward the availability of organic mine warfare capability in our battle group by 2005. But my view was that we needed a class of ships that goes on and takes on this asymmetric threat that we are going to be dealing with in the 21st century. I am not sure what this hull looks like exactly. I am not sure it is going to be steel, aluminum, a composite, what it is going to be.

What I want is an effective combat capability that will enable us to go in there and take on the enemy and fight and win. So we have leased a couple of these vessels. We are conducting experiments and they are going very well. We have one that has now been turned over for Army use. We took it to Europe. It is now conducting operations there and it will be operating in other parts of that part of the world.

Senator REED. One of the other aspects of mine warfare, and I share the chairman's concern, is the rapid use of unmanned undersea vehicles, not only in mines but also in other types of operations. I know that you are planning to accelerate the Multi-Mission Reconfigurable unmanned undersea vehicle (UUV) and also the Long-term Mine Reconnaissance System, the LMRS. Specifically with those systems and in general about UUVs, your comments about where you are now?

Admiral CLARK. I think with unmanned vehicles, there is a great future and we should be exploring this kind of technology under the water, on the surface, and in the air. It is also clear to me that the Littoral Combatant and the marriage of unmanned vehicles, potentially manned vehicles also, but unmanned vehicles to do certain missions that I believe the future in technology will prove to us that is better done by unmanned vehicles and the ability to do off-base, off-hull, off-the-ship kind of sensor operations that will tremendously advance our warfare and combat capability.

So I see the LCS delivering—delivering and introducing—this into the capability as rapidly as possible in a hull form that will enable us to conduct these kinds of operations. I believe it will be required for mine warfare as well as near-land ASW.

Senator REED. Thank you.

Thank you, Mr. Chairman.

Senator KENNEDY. Senator McCain.

Senator MCCAIN. Thank you, Mr. Chairman.

Admiral, thank you again for being here today. Admiral, last month the OSD Comptroller, Dr. Zakheim, testified before the Subcommittee on Readiness and Management Support that the decision to begin funding LHD–9 in the 2003 budget was done completely in conjunction with the Navy. Were you involved in those discussions?

Admiral CLARK. You mean specifically with Dr. Zakheim?

Senator MCCAIN. Yes.

Admiral CLARK. No, sir, I do not recall any discussions on LHD–9, no.

Senator MCCAIN. I see.

Admiral CLARK. I would say, Senator, I do not know if he said me in particular or if he said the Navy.

Senator MCCAIN. Oh, no, he just said done completely in conjunction with the Navy, which one might assume that that would be the Chief of Naval Operations.

Admiral CLARK. No, sir, I did not have those discussions.

Senator MCCAIN. So the first you heard of it was when it became published in the media?

Admiral CLARK. Well, in the closing days as we were putting this budget to bed, we were dealing with major and a large number of issues, Senator, as you can well imagine—you have been through this—dealing with a number of ships and billion dollar kinds of things. Frankly, that issue did not come up at all. When I heard about it, it was in response to what was this particular funding line about, and it was my belief and the belief of those members of my staff that it was all about the replacement for the amphibious assault ship (LHA); that that was the intent.

Senator MCCAIN. I see. I appreciate that.

You and I have discussed what I feel is a shortage of carrier presence during this crisis. If you had your choice, would you rather have an LHD–9 or a CVN?

Admiral CLARK. Well, if all things were equal, certainly I would love to have another carrier.

Senator MCCAIN. How do you feel about this shortage? Because when you look back at the last several crises we have been in recently, we have had to uncover a certain area, whether it be the Western Pacific or, in the case of the P–3 incident that took place with China, we had to uncover the Mediterranean, I believe.

How do you feel about that? What are the Navy's plans for additional carrier construction?

Admiral CLARK. Well, first of all let me answer the second part, how do I feel about future construction. Certainly CVN(X) I believe brings the kind of technology along that we need in the future, because it brings a lot of——

Senator MCCAIN. When would you like to see that happen?

Admiral CLARK. Well, it is in the existing budget. It is a 2007 and a 2008 kind of a funding line. That program slipped, principally for affordability issues. It did not have enough top line to keep it where it was before.

With regard to how I feel about these challenges, every time one of these challenges comes up I make a judgment and a recommendation on how we in the Navy can surge to meet a particular requirement. We have been operating at a fairly intense rate for routine, maintaining two carriers in the Indian Ocean. We could certainly get more carriers there.

But the key to our Navy is that we are a rotational force, and we continue to have that presence there. So you were not here at my confirmation hearing, but it was in this room, Senator, and I said that day, and I believe the same rule applies today, the Nation decides how much of this Navy they are going to have and what kind of Navy that they are going to have.

With a 12-carrier force, we can be in a place, the number of places where 12 carriers will allow us to be represented. Obviously, if we had more it would change that calculus.

Senator MCCAIN. You would agree with me, though, it is wonderful to have a carrier break the record for the longest period of time at sea, I guess since World War II, is that right, the *Theodore Roosevelt*?

Admiral CLARK. Yes, sir, that is correct.

Senator MCCAIN. But is it wonderful to force a number of other aircraft carriers to break that same record?

Admiral CLARK. No, sir, it is not, certainly not.

Senator MCCAIN. Is it possible to retain qualified men and women? I note there were 800 women on board the U.S.S. *Roosevelt.* Is it possible to retain qualified men and women in the Navy when you are asking them to stay for over 6 months at sea?

Admiral CLARK. Well, that is difficult for me to project, but I believe that—you were on the ship and you know how——

Senator MCCAIN. Senator Collins was with us on that trip.

Admiral CLARK. I remember the discussion, the discussion I had with the battle group commander, because I was over there shortly after you were: When are you taking this ship into port? He said: They want the record. They were proud of what they were doing. That does not discount your concern.

Senator MCCAIN. Yes, but my question was do they want it twice.

Admiral CLARK. No. I understand your point and that is where I am. This is not something that we want to be doing on a routine basis.

Senator MCCAIN. If you go through these crises, if history is any guide, you are going to have more of them in the future, and then you are going to have continued inordinate amounts of time at sea and away from home in an all-volunteer force.

Admiral CLARK. We have done some analysis to figure out what the people impact is. I believe that one of the reasons we have been so successful in our retention, recruiting, and objectives, Senator, is that our people really do understand service. We have been studying, and I recall during the Vietnam campaign that my first deployment was 9 months. It is a long time.

We know that if you get in the habit of having those kinds of deployments, people are going to vote with their feet. So this is a decision that the national leadership makes about how they are going to commit the force, sir.

Senator MCCAIN. There are reports that the Navy is being approached to purchase a pair of unfinished cruise ships at the Northrop Grumman shipyard in Pascagoula, left behind when American Classic Voyages went bankrupt, for use as mobile housing or a hospital ship. Is the Navy in any way interested in purchasing these ships?

Admiral CLARK. We were asked about these ships. We sent our engineers down to look at the ships. The ships are not suitable for the kind of platforms that we need and we are not interested in them.

Senator MCCAIN. Thank you, Mr. Chairman.

Senator KENNEDY. Thank you.

Senator Warner.

Senator WARNER. I thank the chair.

Chief, my good friend, I will get directly to the point, a follow-on to the very good questioning you had with your fellow sailor, Senator McCain, about the carriers. It is my expectation, I hope, that a recommendation which I will be forwarding to the chairman and ranking member of this subcommittee to find the funds to restore the carrier to the original position it once had in our budget process.

I do so by no means to be confrontational with the Secretary and/or yourself. You had your framework of decisions. But as you recognize, being a coequal branch, we have our framework of decisions. It is my hope and expectation that eventually this subcommittee and the full committee will restore those funds.

My direct request to you, assuming that it becomes a part of the authorization bill, would you be willing to support that law and go forward with the restoration of that program as it once was?

Admiral CLARK. Well, of course I am going to implement the law.

Senator WARNER. Good.

Admiral CLARK. May I comment further?

Senator WARNER. No, I do not know that there is any need. [Laughter.]

The question was very clear and the response was equally clear. But I hope that in doing so that you feel that it is consistent with your goals as the top sailor in the Navy to put our carrier force in the strongest position possible to again, if necessary, carry out the missions it has here in the last 90 to 120 days.

Admiral CLARK. The move on the CVN(X) was an affordability issue.

Senator WARNER. We have been all over that.

Admiral CLARK. We have.

Senator WARNER. The record is clear on that. I thank you for your responses.

I thank the chairman and members of the committee.

Senator KENNEDY. Senator Collins.

Senator COLLINS. Thank you, Mr. Chairman.

Admiral Clark, welcome. It is a pleasure to have you here today. I was very pleased to hear your strong statement of support for the DD(X) and the family of ships that its technology will support. In the last year, there has been a lot of focus on the technology associated with the DD 21 or the DD(X), but less discussion about the need for this next generation destroyer.

So just to underscore what you have said today, it is not just the technology the you need. You need a new generation, next generation destroyer. You need DD(X). Is that correct?

Admiral CLARK. Absolutely.

Senator COLLINS. The second question I want to ask you, though, has to do with some manning initiatives for the DDG–51 and the FFG–7 frigate modernization program. One of the advantages of the DD(X), of course, is that it could operate with a much smaller crew size. Would you discuss for a moment the Navy's need for an optimized manning initiative for the DDG–51 and for the FFG–7 and talk about the advantages of perhaps investing such that we could reduce the crew sizes for those, which are particularly important in view of the Navy leadership's decision to maintain the remaining 33-ship FFG force, in part because of the expectation that these ships may have a new role to play in homeland security?

Admiral CLARK. Well, first of all, Senator, one of the actions that we took immediately after September 11 was I had an FFG that was scheduled to be decommissioned. We put that on hold because of the very point that you make, that this has a potential role to play in homeland defense. So I think that there is no question that the FFGs have a role to play.

Point two, what am I doing with the optimum manning experiment? It is just exactly that. I have been at sea, I have been in the Navy for 33 years. I have to be the CNO and I had the conviction that I was on some ships that I did not think the manning document was laid out correctly. I put out in my guidance this year that we are going to zero-base every billet that we have in the whole Navy and that on particular ships, I want to run some experiments making sure that we have made moves to adjust the manning after we have made policy changes that changed the requirements.

So that is what that particular experiment is about. Do we have it right and, if there is a question, let us run the test and then adjust, not just jerk the people off. Run the test and see what happens.

Point three, I think, is about an investment to reduce manning. That is something that I believe. We need to capture technology. I believe that when I talked about what tomorrow's Navy looks like, it is a Navy that is a more senior Navy. It is a Navy that is very high tech with high tech people. Frankly, I want every job that we have to offer people to be a very rewarding and challenging one, and I want to get rid of jobs that are not that way to the maximum extent that I can.

This will include investing in technology that would allow us to get rid of some of those less rewarding and fulfilling assignments.

Senator COLLINS. Thank you.

The third issue I want to raise with you really piggybacks on some of the concerns that Senator Warner has raised with you about the low level of ship procurement. I know that you have been very frank with your concerns about the low procurement rates. It obviously has an adverse impact on the stability of our industrial base as well as the size of our fleet.

I also think that the Navy is paying a premium in program costs due to the small number of units being built. Could you discuss perhaps, to follow up on Senator Warner, what your priorities

would be if additional funding is forthcoming, for example for the need to procure three DDG–51s this year rather than two, as put forth in the budget? How high on your priority list of unmet needs is that?

Admiral CLARK. I do not remember, Senator. I sent an unfunded list over here and I had the DDG on it and it is near the top. I do not remember the exact number, but it is very near the top.

Let me just go on record once again with this comment. I have stated that we need to be investing $12 billion a year in new ship construction. I do not know how to make it any clearer than that, so I say it again. We should be doing $12 billion a year in new construction, not just SCN. SCN can be repair and modernization, for example, refueling overhauls and so forth. That is my belief.

My analysis shows that that is what we need to sustain the force. I could not get there. I also told you all on the first day that I came to this very room that I was going to pay the current readiness bill. I told you that is what I was going to do, because I had lived in a Navy where it was not done that way and I am not going to be the CNO of a Navy that does not stand up and make that claim. I am not going to send the young men and women of this Nation out to serve on ships and aircraft that are not ready.

So I did not have enough money to get there and that is why we do not have $12 billion in the account and in the program.

Senator COLLINS. I think many of us on this subcommittee are committed to helping you get there because we are truly concerned about the impact of the low procurement rate. I understand you had a lot of very difficult choices to make, but I hope we will be able to make some adjustments to deal with the shipbuilding budget as well.

Finally, Admiral, and I know my time is about to expire, I want to let you know that yesterday I was at the Portsmouth Kittery Naval Shipyard on the border in Maine. The Supreme Court has finally settled that issue once and for all and we now call it the Portsmouth Kittery Naval Shipyard. The men and women working there just set two national records for completing the overhaul and refueling of two *Los Angeles*-class submarines in record time. I wanted to share that accomplishment with you and it suggests that we should keep that shipyard very busy because the work load for that shipyard is troubling over the next couple of years, and yet they are setting performance records that have not been matched by any other shipyard. So I am very proud of the work they are doing.

Thank you.

Admiral CLARK. Yes, ma'am.

Senator KENNEDY. Just a final question on my part, Admiral. This is on the issue of aircraft carrier homeporting options. We know the relationship, 7.6 carriers in the northern Arabian Sea, 1.7 to keep one for the Western Pacific. I asked the Admiral at the last hearing about forward homeporting options and he talked about submarines and other support ships in Guam, but he made no mention about looking at other options for homeporting carrier battle group.

I am just wondering if you can give us assurance the Navy will give serious attention to all the options for increasing forward pres-

ence. Senator Sessions and I wrote you a letter I believe earlier this year and we would be interested in assurances from you that you are going to look at the range of different options.

Admiral CLARK. Yes, sir. I do not remember if your letter prompted the particular guidance that I put in my 2002 guidance to our Navy or not. I have to go back and check the time line. But looking at options, we will this year, and it is in the guidance that I put out to our Navy, commence again experiments to look at alternative manning concepts. These are fundamentally to reduce the amount of time spent in transit and increase the time that is forward. We are going to do that starting this summer.

We have not looked at the carrier specifically because it is much more difficult because of the size of the carrier to do. There are huge implications in this. We do it now with blue-gold crews on submarines. You are very aware of that. I will not take up all the time to explain what the issues are, but they are training and maintenance specifically.

I intend to continue those experiments and to look, and the guidance that I have given our Navy is challenge every assumption that we have ever made about the way that we do this.

Senator KENNEDY. We would appreciate that. We outlined in our letter at least some of these policy issues. We welcome making sure that you will, which I am sure you would, that you will give your full focus and attention to it.

Are there other questions from our subcommittee members?

Senator Sessions.

Senator SESSIONS. Yes, briefly.

When is the next carrier coming on line? When do we project, do you recall?

Admiral CLARK. I will have to get the specifics, but the *Ronald Reagan* delivers next. The next panel will give you the specifics.

Senator SESSIONS. But is it the firm plan now to take the *Kitty Hawk* out of the fleet as soon as the *Reagan* comes on line?

Admiral CLARK. The next ship out is the *Constellation.*

Senator SESSIONS. The *Constellation.*

Admiral CLARK. Yes, sir. We have done the analysis to see what it would take to retain her in terms of finances.

Senator SESSIONS. So if you could maintain that ship you would have an additional carrier.

Admiral CLARK. That is correct.

Senator SESSIONS. If we got back on line with the commitment, the QDR level I guess, on the carriers that we cut back on in this budget, I understand it would be about $239 million additional funds we would have to come up with this year?

Admiral CLARK. I have to check the number, Senator. I would be happy to provide it for you, but I do not have it here.

[The information referred to follows:]

The correct amount to get CVNX back "on line" is $229 million. The CVNX–1 PB02 program of record schedule (fiscal year 2006 construction start/later fiscal year 2013 delivery) would have required Northrup Grumman Newport News (NGNN) to start their design team ramp up on January 2002. However, adjustments made to the CVNX–1 program of record in PB03 delayed the start of construction until fiscal year 2007 and, as a result, NGNN has not started their design team ramp up. If Congress were to provide additional funding in fiscal year 2003 for CVNX–1 and im-

plement the revised funding profile, the earliest CVNX–1 could be delivered would be March 2014 due to the 9-month loss of design team ramp up in fiscal year 2002.

Senator SESSIONS. Thank you.

Senator KENNEDY. If there are no further questions, thank you very much.

Admiral CLARK. Thank you, Mr. Chairman. It is always a pleasure to appear before the subcommittee.

Senator KENNEDY. We appreciate it very much.

Admiral CLARK. We very much appreciate your support.

Senator KENNEDY. Thank you very much.

Our next panel, Major General Whitlow, Rear Admiral Balisle, Rear Admiral Sullivan and Rear Admiral McCabe.

We will start off with General Whitlow. We will hear a brief presentation from each of the panelists. We will file the statements in the record, and then proceed to the questions.

STATEMENT OF MAJ. GEN. WILLIAM A. WHITLOW, USMC, DIRECTOR, EXPEDITIONARY WARFARE DIVISION, OFFICE OF THE DEPUTY CHIEF OF NAVAL OPERATIONS FOR WARFARE REQUIREMENTS AND PROGRAMS

General WHITLOW. Mr. Chairman and distinguished members, I have a very brief statement if you would allow me.

Senator KENNEDY. Fine.

General WHITLOW. Mr. Chairman and distinguished members of the Seapower Subcommittee, I am Major General Bill Whitlow, Director of Expeditionary Warfare Division. I appreciate the opportunity to appear before you today. I must warn you, I just had a root canal and some oral surgery, so if I appear to be drooling I am going to use that as my excuse and will stick with it.

Senator MCCAIN. Would you rather have the root canal than be here? [Laughter.]

General WHITLOW. I am truly on drugs, sir.

But seriously, to maximize operational effectiveness, we have pursued programs that enhance our capability to be fast, flexible, and lethal. Underpinning these operational imperatives is the requirement for the amphibious lift. By doctrine and prudent analysis, execution of our Nation's military strategy relies on the availability to deploy three marine expeditionary brigades.

As this committee knows, we have not been able to meet the 3.0 marine expeditionary brigade requirement because of fiscal constraints and instead have focused on the less capable goal of maintaining lift for 2.5 marine expeditionary brigades. This is a deficiency that must be addressed and strikes at home in our shipbuilding accounts.

The ability to conduct expeditionary warfare is tied to the size and composition of our naval force. The amphibious fleet remains the oldest in the Navy and must be enhanced. Key to this effort is the LPD–17 program. According to the current ship construction plan, the 2.5 marine expeditionary brigades' worth of lift capability will not be achieved until the delivery of the twelfth LPD–17, now estimated for delivery in the year 2015. As such, the Navy is forced to retain the aging and increasingly unreliable 35-plus year old LPD–4 class of ships, ships that are plagued with problems of poor habitability and deteriorating working conditions. These conditions

have a direct impact on the morale and effectiveness of their assigned personnel.

Another initiative that impacts every aspect of expeditionary warfare is the LHA replacement program. An ongoing analysis of alternatives is due to be completed 2 months from now during June and should lead to the selection of a design of an LHA replacement. The LHA replacement ship class will be multi-functional and highly versatile. It is prudent to improve the baseline capability of the LHD–8, a transition ship with limited capacity for future growth. A smooth transition from LHA to LHD–8 to the LHA replacement is critical if we are to leverage technology to garner adequate ground combat power in order to maintain forcible entry capability. Unless we like playing home games, which I do not believe we do, forcible entry capability is at the heart of this Nation's national strategy.

Navy leadership has openly discussed the difficulties associated with mine countermeasures warfare operations, especially in the surf zone, as the chairman has articulated earlier. Unfortunately, recent efforts to develop a mine clearance, mine destruction system in the surf zone proved unsuccessful. That was the shallow water assault breaching-distributive explosive technology (SABRE–DET) previously mentioned. That is not to say that we do not have a surf zone, very shallow water capability. Unfortunately, we are forced to conduct such operations using special warfare divers and mammals.

As this committee knows, a decision was made to terminate development of the SABRE and DET systems, two R&D programs that early on demonstrated great potential. To remedy this unsatisfactory situation and provide a badly needed capability, the Navy has instituted a corrective three-track program. These tracks seek to improve systems for immediate possible use as well as develop more capable systems in the near and long-term.

Thank you for the opportunity to testify today. I am standing by for your questions, sir.

[The prepared statement of Major General Whitlow follows:]

PREPARED STATEMENT BY MAJ. GEN. WILLIAM A. WHITLOW, USMC

Mr. Chairman, distinguished members of the Seapower Subcommittee, I am Major General Bill Whitlow, Director of the Expeditionary Warfare Division. It is truly an honor to represent the men and women of your United States Navy and Marine Corps expeditionary team. As head of the division that identifies and validates resource requirements necessary to conduct expeditionary warfare, I provide this testimony on their behalf.

History is replete with incidents that galvanize a nation. The events that took place 7 months ago stunned our sense of domestic tranquility. They also aroused our collective anger, eliciting a national call to arms to eliminate a vengeful enemy eager to wreak carnage onto the American public. Our military response has been powerful, yet focused; lethal, but mindful of the ideals that form the foundation of our Nation. Over the years, this committee has supported and provided valuable guidance on many of the systems now being employed in defense of our country. You should take great pride, as I do, in the sailors and marines who are faithfully and professionally performing their assigned duties overseas today. Their performance is a reflection of the support they have received from their countrymen and elected leaders.

It is worthy of our time to pause and examine how our Nation has chosen to respond to the war on terror. Well before my tenure as Director of the Expeditionary Warfare Division, Navy and Marine Corps leaders have spoken of the operational advantages of possessing a force that is lethal, flexible and self-sustaining. Events

in Afghanistan have demonstrated that the maritime strategy *"forward . . . from the sea"* is valid even when conducting warfare in a country that is landlocked and located 400 miles from a major body of water. Despite Afghanistan's isolation, the first sustained U.S. military operation ashore was conducted by the 15th and 26th Marine Expeditionary Units, an expeditionary force that was deployed, organized and launched from the U.S.S. *Peleliu* and U.S.S. *Bataan* amphibious ready groups (ARGs). As you recall, the mission of these two MEUs was to seize the first in-country staging base (Rhino), secure the Kandahar airport and establish a base from which quick-reaction operations could be conducted to further track down Taliban and al Qaeda forces.

The MEUs' conquest is simply the latest example of a long history of expeditionary warfare. The term "expeditionary" refers to a menu of forces (air, ground, and sea) that are forward or rapidly deployed to achieve a specific national security objective. These forces are trained and configured to respond to the full spectrum of military operations, from humanitarian assistance to small-scale contingencies through major theater war. To be effective in these different and challenging operations, expeditionary warfare forces must be capable, mobile and extremely versatile. While the concept of "expeditionary warfare" may seem new or revolutionary, in reality it is how this Nation's sea services have operated for all of its 226-year (plus) history.

To maximize operational effectiveness while minimizing the threat to safety, we have pursued programs that enhance our capability to be fast, flexible and lethal. Underpinning these operational imperatives is the requirement for lift. Lift drives everything. It permits us to respond quickly, decisively, and without first having to obtain host nation support. Lift also allows us to be on station to monitor and hopefully deter events before they escalate. The naval amphibious assault ships that provide the critical lift are designed to conduct sea-based operations with a minimal reliance on host or allied nation support. Amphibious ships with embarked Marine forces are one of the most formidable power projection capabilities in the world and represent our Nation's only sustainable forcible-entry capability.

By doctrine and prudent analysis, execution of our Nation's military strategy relies on the availability and readiness to deploy three Marine expeditionary brigades (MEB) assault echelons, the so-called "3.0 MEB lift." However, it should be emphasized that the 3.0 MEB requirement is based on a single major theater war (MTW) scenario and this force is not intended to act as a swing force in the event of a second contingency or second MTW. As this committee is aware, we have not been able to meet the 3.0 MEB requirement because of fiscal constraints and instead have focused on the less capable goal of maintaining 2.5 MEB. The fiscally constrained 2.5 MEB goal was supposed to be a temporary situation; a "strategic pause" permitted following the end of the Cold War and Operation Desert Storm. It was not intended to replace, nor should it be seen as an acceptable alternative to, the 3.0 MEB requirement. Unfortunately, I must report that we have not been able to maintain the 2.5 MEB capability in the active force. Today, your expeditionary forces are only equipped at 2.1 MEB lift equivalent with the corresponding risk and dangers inherent in such a reduced posture. I want to emphasize that a 2.5 MEB capability is neither dependent on, nor significantly affected by, changes to the two MTW strategy.

So what? So why should Congress and the American public be concerned if our military falls even further from the required 3.0 MEB lift? Among the capabilities that expeditionary forces—and in many cases, expeditionary forces alone—provide is assured access. As the number of overseas U.S. bases has decreased, the importance (and difficulty) of gaining and sustaining entrance into foreign hotspots has increased. Expeditionary warfare, with its diverse, tailored packaging of forces represents our Nation's *only* forcible entry capability as well as the enabling force for the introduction of heavier and more specialized forces into a theater conflict. As such, without adequate amphibious shipping we run the risk that access will be blocked or achieved only at great human cost.

The ability to conduct expeditionary warfare is tied to the size and composition of our naval force. The amphibious fleet remains the oldest in the Navy and must be replaced and enhanced. Key to this effort is the LPD–17 program. The LPD–17 *San Antonio*-class ship is a highly versatile, wet-well platform that is capable of conducting both air and landing craft air cushioned (LCAC) operations. According to the current ship construction plan, the 2.5 MEB lift capability will not be achieved until delivery of the twelfth LPD–17, now estimated for the 2015 timeframe. As such, the Department of the Navy is forced to retain the aging and increasingly unreliable LPD–4 class of ships. All of these ships are currently 31–37 years old and are not expected to be decommissioned until they reach an average age of 41.5 years—6.5 years beyond their expected service life. Not surprisingly, the LPD–4

Austin-class ships are plagued with problems of poor habitability and deteriorating working conditions that have a direct impact on the morale and effectiveness of assigned personnel. Additionally, these ships require costly C^4I upgrades to be interoperable with other C^4 advances being implemented throughout the fleet.

I cannot stress enough the importance of maintaining, if not accelerating, the construction schedule of the LPD–17. Relative to the LPD–4s, delivery of LPD–17s will have a direct and immediate increase in our warfighting capability. The LPD–17s will provide increased vehicle and LCAC capacity, improved aviation and C^4I capability, improved survivability, and improved shipboard quality of life. They are a vital asset and a prudent investment.

Another initiative that impacts every aspect of expeditionary warfare is the LHD–8/LHA Replacement (LHA(R)) program. The five *Tarawa*-class LHAs are rapidly approaching the end of their service life and face block obsolescence at the rate of one per year from 2011–2015. Under the recapitalization plan, we project that some of the LHAs will not be retired until they are as much as 10 years beyond their 35-year service life. LHD–8 (*Wasp*-class) is scheduled to begin construction in fiscal year 2002 with an expected delivery during fiscal year 2007. Once operational, LHD–8 will replace one of the *Tarawa*-class LHAs. Yet, as this committee well knows, the LHD–8 is a "transition" ship—a ship designated to develop and demonstrate technology that will be incorporated into the follow-on LHA replacement ship. An ongoing analysis of alternatives (AoA) is due to be completed in June 2002 and should lead to the selection of a design for the LHA(R). As the centerpiece of the amphibious ready group, the big deck LHA(R) ship will be multi-functional and highly versatile. It is prudent, however, to improve the baseline capability of the LHD–8 and leverage technology to garner more vehicle and air capacity. A smooth transition from LHA to LHD–8 to LHA(R) is reliant on continued funding of the LHA mid-life sustainment program. This upgrade program extends to 35 years the useful life of the aging LHA-class ships and provides the time necessary to pursue the LHA(R) in a fiscally responsible manner.

From an operational point of view, lift (and the ships that constitute our lift) is necessary to transport and sustain the expeditionary amphibious triad. The triad consists of LCAC, the advanced amphibious assault vehicles (AAAVs), and the MV–22 tilt-rotor aircraft. The versatile LCAC is the primary platform for high speed, over-the-horizon transport of troops, vehicles and material. The LCAC's high speed and ability to access over 70 percent of the world's coastlines (compared to 17 percent for conventional landing craft) is key to our ability to execute the maneuver warfare doctrine of seeking out and landing at the enemy's weakest point. The LCAC fleet is undergoing a service life extension program (SLEP) to correct hull fatigue and corrosion, extending the hull life up to 20 years. In addition, the SLEP includes an upgrade to its command/control/communication/computer and navigation (C^4N) suite and enhanced engines that will increase its interoperability and performance. I'm pleased to report that in December 2000, the Navy received its first successful SLEP craft, LCAC 91, providing a good template for future LCACs. This program makes good business sense and is widely endorsed by fleet commanders. Our conventional landing craft now average 35 years of age. The LCU replacement program is on track for a fiscal year 2005 start to replace these craft.

The attack on the World Trade Centers, preceded by the 1999 attack on the U.S.S. *Cole*, illustrate the type of asymmetric threat our sailors and marines face as they carry out their duties in support of our national objectives. All of our commanders place the protection of their sailors and marines on top of their priority lists, and it is my task to provide the support necessary to optimize their ability to deter and counter such an attack and to minimize the consequences should one occur. The solution lies in a combination of complimentary efforts, ranging from doctrine and training to manpower and equipment. While there is no single program that can entirely eliminate our vulnerability to a terrorist attack, there are several ongoing initiatives within expeditionary warfare that will improve our ability to both deter and defeat terrorist attacks.

For the past year and a half, our naval coastal warfare forces (NCWF) have been called upon to conduct expeditionary harbor defense and coastal surveillance at critical locations throughout the globe. It is important to note that the NCWF is almost completely manned and managed by Naval reservists and is a prime example of the integration between active duty and Reserve Forces. Using their core elements of mobile inshore undersea warfare units, inshore boat units, and Harbor Defense Commands, the naval coastal warfare forces have provided us the flexibility and capability to tailor units to meet specific requirements based on the deployment location and threat. These deployments, however, have revealed critical readiness shortfalls, primarily in equipment deficiencies, that have accumulated since their last major employment during Operation Desert Storm. Providing sufficient resources to

attain sustainable readiness for this small but essential force is one of my most immediate priorities.

This group of highly motivated naval reservists has largely volunteered to defer their personal and professional lives so that they may contribute to our Navy's immediate security. This increased force protection posture, however, is not indefinitely achievable solely through a Reserve Force, however motivated. To that end, we have resourced the establishment of an active duty "mobile security force" that will provide our naval commanders with a flexible, rapidly deployable, and immediately available capability. This force is designed to provide defensive security augmentation during heightened force protection conditions in locations where the U.S. or the host nation's security infrastructure is inadequate to meet the temporary heightened requirement. This new force has been fully resourced to the identified requirement. The first detachment is expected to reach initial operational capability early in fiscal year 2003, and all 12 detachments will become fully operational by fiscal year 2005. While this new Active-Duty Force will not replicate the robust surveillance and command and control capability of our Reserve naval coastal warfare force, it will relieve them of the security augmentation role they have been filling, allowing us to sustain heightened force protection requirements and conduct extended harbor security and overseas littoral surveillance operations.

Equally important to our ability to maintain a heightened security posture in locations where our expeditionary forces operate, is the requirement to detect, identify and defeat weapons most commonly employed by terrorist organizations. Such weapons include the full spectrum of chemical, biological, nuclear, radiological (CBNR) and enhanced explosive devices. This difficult task lies primarily with another of our Navy's small but critical forces: explosive ordnance disposal (EOD) units. To improve the capabilities and safety of these highly specialized forces, we are developing unmanned ground and underwater vehicles to assist in conducting dangerous EOD operations at sea or on land, in hostile and contaminated environments. We are also funding increased EOD force levels as the demand for these uniquely skilled operators increases across the spectrum of naval operations. The Navy is not the only service feeling the increased demand for EOD capabilities. As the single manager for joint service EOD technology and training, the Navy is expanding and improving the curriculum for joint service advanced improvised explosive device training and developing technologies to further enhance the joint service capability to detect, identify and defeat terrorist devices.

While much of the current discussion of asymmetric threats involves terrorist activities, perhaps the greatest asymmetric threat to expeditionary operations continues to be the anti-ship mine. To address the challenges posed by sea mines, the Navy-Marine Corps team is maintaining a dedicated mine countermeasure (MCM) force while simultaneously developing and introducing new organic MCM capabilities. Dedicated and organic assets are complimentary and are designed to address two different missions. Organic MCM systems are being developed to permit naval forces to operate/transit in a mined environment without having to await the arrival of dedicated MCM forces. Focusing primarily on the area that stretches from deep water to the 40-foot curve, organic assets will provide a highly capable, albeit reduced, capacity across the MCM requirements spectrum. Specifically, the carrier battle group commander will have a full range of organic MCM capabilities embarked as an integral part of the battle group. These ship-borne assets will give forward-deployed forces the ability to conduct timely MCM operations, allowing for unencumbered transit and minimizing the operational delay or impact of mines on a mission.

Dedicated MCM forces are equipped, manned and trained to provide a sustainable capability for larger missions such as detecting and clearing mines in a broad geographical area. Dedicated forces will continue to provide highly capable assets in sizes and quantities that effectively address the sustained, large area MCM efforts required for creating areas necessary for both fleet operations (e.g. large carrier operational areas or major Q-route shipping lanes) and amphibious task force operations (principally large landing architectures). It is the Department of the Navy's position that *both* organic and dedicated forces are needed to safely and efficiently prosecute MCM missions.

The Navy leadership has openly discussed the difficulties associated with MCM operations. Contained in the Fiscal Year 2003 U.S. Naval MCM Certification Plan is the admission that, "given the complexity and proliferation of the mine threat and the myriad of environmental influences on MCM system performances, mine countermeasures represents one of the Navy's most significant operational and tactical challenges." To address these challenges the Navy has developed a plan that seeks to maintain current assets while aggressively developing and fielding new capabilities. The overarching goals of this plan are to (1) shorten the MCM tactical timeline

and (2) reduce and eventually eliminate manned MCM operations in mine threat areas.

Current capabilities are well established in the "blue water" operational area. These capabilities are resident in the current MCM triad force of surface mine countermeasures (SMCM) ships, airborne mine countermeasures (AMCM) helicopter squadrons, and underwater mine countermeasures (e.g., EOD MCM detachments and marine mammal systems). This multi-faceted force operates synergistically and is well suited for mine hunting and minesweeping in deep waters. The Triad offers not only a capable force, but also a sustained high capacity to conduct large area and long endurance MCM efforts. These forces are collectively known as "dedicated MCM." In many respects, this capability is the legacy of efforts begun in the late 1980s and early 1990s to reconstruct a viable world-class U.S. MCM force. Specifically, the *Avenger*-class MCM ships, *Osprey*-class MHC ships, and the MH–53E Sea Dragon aircraft were all introduced or in procurement prior to Operation Desert Storm.

These combined forces possess the requisite capability to successfully hunt and neutralize or sweep mines from the deepest ASW weapons to those threats generally employed in the vicinity of the 40-foot curve. However, inside the 40-foot point the efficacy of these dedicated sensors and platforms, particularly SMCMs and their systems, can be significantly impacted by a number of factors.

Unfortunately, recent efforts to develop a mine clearance/mine destruction system in the surf zone (defined as the area from 10 feet of water depth to the high water mark) proved unsuccessful. As this committee knows, a decision was made in the summer of 2000 to terminate development of the shallow water assault breaching (SABRE) and distributive explosive technology (DET) systems, two R&D programs that early on demonstrated great potential. Knowing Congress's and this committee's keen interest in these programs, we have attempted on several occasions to outline and explain the rationale to terminate. Ultimately, the decision was made because the military utility of these programs was judged too low to justify the cost. Studies proved that these programs were ineffective against specific threats, could not be operated in the presence of even light obstacles, required an extensive number of LCAC missions to employ, proved problematic to handle onboard ship, and required the displacement of an unacceptable quantity of combat power to embark aboard amphibious shipping. While cancellation of these two programs was clearly the right thing to do, it also left the Navy-Marine Corps team without an effective assault breaching system. As such, the Navy's current capability in the surf zone is deemed unsatisfactory. To remedy this unsatisfactory situation and provide badly needed capability in the critical surf zone area, the Navy has instituted a corrective "three track" program.

Track one is known as the operator's track. Under this track the Navy seeks to identify, refine, and improve existing breaching and clearance tactics that currently provide limited surf zone mine countermeasure capability (SZ MCM). Beginning in December 2001, commanders of the Navy amphibious groups and Marine expeditionary forces began briefing N–75 staff on current concept of operations for SZ MCM. With a thorough understanding of the fleet's current tactics, budgetary resources will be focused to support and enhance these capabilities with the aim of maximizing their effectiveness. While a complete solution is not expected from this track, it is anticipated that a better, more realistic approach can be developed that can immediately be employed should the need arise.

Track two, known as the near-term track, seeks to develop and exploit a "family of capabilities". At a minimum, desired/required capabilities include: enhanced ISR tools, data fusion applications, mine-obstacle detection and location systems, precision navigation & maneuvering systems, area/lane/object marking systems, mine-obstacle kill mechanisms, and common C^4I systems.

Within 18–24 months, existing technology promises to provide answers to some of these requirements. For example, the Navy is confident that current commercial off-the-shelf/government off-the-shelf (COTS/GOTS) technology exists to equip landing craft/vehicles with precision navigation systems. Further illustrating the potential of this approach is the airborne laser mine detection system (ALMDS), a program that is already under development and represents the next generation of airborne mine hunting systems. ALMDS has demonstrated that, with certain modifications, it will be capable of rapidly detecting mines in the very shallow water region.

Recent efforts by the Office of Naval Research (ONR) further demonstrate our belief that evolving technology can provide a robust, near-term MCM capability. In January 2002, ONR released a broad agency announcement (BAA) soliciting technology concepts from industry, government labs, and academia. Paramount to concept submission was the requirement that the proposed technology must be demonstrated within 18 months of contract award and fielded to the fleet 3 years there-

after. Thirty "white papers" were received in response to the BAA. A comprehensive evaluation panel involving fleet operators met and selected three promising concepts to pursue. Full proposals are due from these three in mid-May with funding for the 18-month development phase commencing in fiscal year 2003. If successfully demonstrated, a mine and obstacle kill capability could be fielded to the fleet by 2006.

The third track is a long-term approach and is based upon a standard acquisition model (normally 10–15 years) for developing and fielding mine-obstacle "kill" mechanisms. This process encompasses early science and technology (S&T) development work and concept demonstration, and involves clearly delineated milestones such as a full "mission area analysis" (MAA), a subsequent "mission needs statement" (MNS), an "analysis of alternatives" (AoA), and eventually an "operational requirements document" (ORD). This process ensures that the testing, acquisition, and fielding of a system will meet ORD/Fleet requirements.

In December 2001, the Navy established a MAA team, instituted an over-arching O–6-level oversight board and initiated an integrated process team for the purpose of developing required operational capabilities for a family-of-systems to perform amphibious MCM by 2015. The MAA is on track to be completed by the end of fiscal year 2003 and will lead into a fiscal year 2004 AoA. Aircraft and ship-based concepts are currently being examined through the S&T and concept demonstration phase and will be evaluated during the AoA process.

While expediting the overall process is a key priority of this track, particular care will be taken to ensure acceleration does not result in a quick but unsatisfactory product. This track is expected to result in acquisition of the final MCM piece—obstacle and mine kill mechanisms—which, with the other required capabilities, will complete the MCM tool set.

As stated in the Navy's Strategic Planning Guidance (NSPG), establishing an "organic capability of surface forces to detect, avoid and/or neutralize mines within operationally acceptable timelines and with acceptable levels of operational risk" is a top Navy priority. The MH–60S, next generation MCM systems, the remote mine hunting system (RMS) deployed from surface combatants, and the submarine-based long-term mine reconnaissance system (LMRS) address this priority.

The RMS represents the most effective mine hunting system ever carried onboard a non-MCM Class ship. The RMS, an unmanned surface vehicle (USV) towing an AQS–20X sonar system (practically identical to the system operated from the MH–60S), will provide long-duration unmanned operations under the direction of host ship operators or in a pre-planned autonomous mode. The USV "tow vehicle" is almost entirely submerged with only a snorkel/antenna piercing the surface of the water. As such, the RMS is considered to be "low-observable" and very tolerant of sea states that can adversely effect other USVs.

The LMRS is an autonomous UUV system that will be operated from both *Los Angeles*-class submarines (SSN–688) and *Virginia*-class submarines (SSN–774). Using mine detection and classification sonars, the LMRS will be used at extended ranges as a clandestine, forward-deployed asset, to determine the extent and size of the mine threat, as well as to determine the safety of anticipated operating areas.

It should be noted that in addition to fielding the MH–60S AMCM aircraft as an organic asset, the Navy is evaluating whether to transition its dedicated AMCM force from the MH–53E to the MH–60S. One advantage of transitioning from the MH–53E to the MH–60S is airframe commonality between the dedicated and organic fleet AMCM force operations, training, and logistics. Many significant issues are being evaluated including the ability of the MH–60S to conduct the AMCM-required missions as well as the total cost of completely recapitalizing the force into an MH–60S dedicated force. We expect a decision in PR–05.

As this subcommittee is well aware, the Navy converted U.S.S. *Inchon* (LPH–12) to serve as a mine countermeasures command and support ship (MCS–12) in 1994. The intent was to use this ship, the last of her class, to bridge the Navy to a future MCS platform prior to 2005. The rapid aging of U.S.S. *Inchon,* particularly its engineering plant and equipment, resulted in sub-optimal material readiness and high operating/repair costs. Ongoing safety concerns and a recent major fire in its engineering spaces further reduced the ship's utility. Already planned for decommissioning in 2005, the *Inchon*'s age, difficulty in effecting repairs while in homeport, and the immediate need for extensive engineering upgrades combined to lead the Navy to a decision to accelerate the decommission plan to fiscal year 2002.

In the absence of a dedicated MCS platform, the Commander, Fleet Forces Command (formerly Commander, Atlantic Fleet) coordinated a plan with the numbered fleets and Commander, Mine Warfare Command to employ large deck amphibious ships (LHAs and LHDs) in a surrogate MCS role. Upon decommissioning of MCS–12, various key operational capabilities inherent to U.S.S. *Inchon* will be retained in expeditionary detachments. This plan has already been promulgated and will be

exercised on a regular basis. Use, however, of amphibious shipping as surrogate MCS will pose additional constraints on MEB AE lift requirements. When embarked, MCM assets will greatly increase the size of the naval support element and will encroach on aviation and vehicle storage space—a situation that must be watched and managed closely.

Concurrent with the employment and refinement of this interim MCS concept, the Navy is conducting a MCS mission area analysis (MAA) with Johns Hopkins University. This MAA will lead to a refined mission need statement supporting an analysis of alternatives for a follow-on MCS platform. Additionally, the Navy continues to experiment with transformational concepts like the high speed vessel to understand how such a concept/platform might serve in an MCS role.

In closing, I first want to echo and reinforce what General Jones stated to this committee on March 5, 2002. The long recognized requirement for the amphibious force structure is the ability to lift the assault echelons of *three* Marine expeditionary brigades. Today, we can barely lift two brigades—a mere two-thirds of the requirement. I second the commandant's recommendation that we recapitalize our amphibious fleet as a matter of urgent priority. Two programs that I have testified about today will move us closer to meeting this critical requirement. We need delivery of at least 12 LPD–17s and replacement of the LHAs as they approach the end of their expected service life. Second, I want to reemphasize the need to ensure the safety and welfare of our sailors and marines. The way to do this is to ensure that the equipment and shipping they use is modern, capable and habitable. Again, LPD–17 and LHA(R) address these priorities, as does our continuing endeavor to remove the "man and mammal from the minefield." We can ill afford not to fully exploit these programs. The gain far exceeds any short-term financial pain caused by investing in the safety and welfare of our most precious asset—our sailors and marines. I am grateful for your support and look forward to supporting you and the American people in the years to ahead.

Senator KENNEDY. Admiral Balisle.

STATEMENT OF REAR ADM. PHILLIP M. BALISLE, USN, DIRECTOR, SURFACE WARFARE DIVISION, DEPARTMENT OF THE NAVY

Admiral BALISLE. Mr. Chairman, members of the subcommittee, thank you for the opportunity to appear before you today to discuss the Department of the Navy's fiscal year 2003 surface warfare systems budget. I would also like to thank the committee for your strong and enduring support for surface warfare programs and, more importantly, for your support of our truly outstanding surface warriors. These young men and women who stand watch today on ships and at support bases around the world in the defense of freedom are the heart and soul of surface warfare and are the key to our success.

Surface warriors and our systems have played a key role in the recent successes in the war on terrorism. The status of surface warfare today is healthy and improving. We have a credible combat-ready force that emphasizes forward-deployed operations. This year's budget submission shows real progress in fiscal year 2003 and through the future years defense plan in support of our strategy to provide a robust warfighting capability necessary to pace the threat and support worldwide assured access for joint forces.

We are focused on providing the greatest flexibility for the least investment. For our fiscal year 2003 budget, we seek improvement in current and future readiness, with emphasis on transformational technologies and concepts, to provide affordable solutions to our warfighting requirements. More importantly, we will endeavor to get those solutions rapidly into the fleet.

My written testimony describes our investment strategy and details the impact of this budget submission on the full range of sur-

face warfare programs. But I would like to very briefly highlight our efforts in three important areas: readiness, network-centric warfare, and the future fleet.

This year we are making solid progress in addressing longstanding readiness issues, thanks to the leaders and sailors in the fleet and the support of this Congress. Surface warfare manpower, training, and maintenance accounts have recently posted significant levels of improvement, an achievement reflected in the persistent performance of our ships in the ongoing war on terrorism. The fiscal year 2003 budget submission continues this improvement trend in these critical readiness areas.

The Navy's cornerstone warfighting concept of network-centric warfare derives maximum force warfighting potential through rapid and robust networking of diverse, well-informed, and geographically dispersed warfighters. The Navy's cooperative engagement capability (CEC) system and the naval fires network are leading the way in making network-centric warfare a reality in the fleet.

The *John F. Kennedy* battle group deployed with CEC last month and we added in this budget submission significant funding to accelerate fielding and further development of CEC and other sensor-netting technologies.

The naval fires network digitally connects sensors through decision makers to shooters. This provides time-critical strike and time-critical targeting capabilities and enhances every area of our warfare missions. Using the Defense Emergency Response Fund provided by Congress this year, we have accelerated deployment of this vital system and our current budget request ensures continued rapid deployment and development of this significant situational awareness and time-critical targeting capability.

The report of the Quadrennial Defense Review study and the Navy's leadership have recognized that assuring access to key regions abroad and projecting power in its various forms requires a broad range of naval capabilities. To achieve this, our 21st century Navy must be comprised of affordable force, reflecting state-of-the-art capabilities and technologies.

The cornerstone of this force is the timely fielding of the DD(X) destroyer as the lead ship of an evolving class of multi-mission threat-capable, and cost-efficient surface combatants. The application of a proven *Spruance*-to-Aegis evolutionary ship development approach in a new class of 21st century combatants is absolutely essential for tomorrow's Navy. Together with the cruiser conversion program and the upgrade of our DDGs, these future ships will provide the joint force commander with a toolbox of capabilities he needs.

In conclusion, sir, once again I would like to thank you and the members of this committee on behalf of the surface warriors in our Navy. I want to offer my sincere thanks for this opportunity to speak before you today and I stand by for your questions.

[The prepared statement of Rear Admiral Balisle follows:]

PREPARED STATEMENT BY REAR ADM. PHILLIP BALISLE, USN

Chairman Kennedy, Senator Sessions, distinguished members of the Senate Seapower Subcommittee, thank you for the opportunity to address you today on the status of the surface Navy. I greatly appreciate the excellent and continued support

your committee has given the surface Navy which has allowed our Surface Warriors to contribute significantly to America's Navy's accomplishment of our missions around the world—including the swift and effective response to the attacks of last September—while continuing to advance our strategy to transform the Surface Forces to meet the challenges of the future.

THE UNITED STATES NAVY—PRESENCE . . . POWER . . . PRECISION

Our Navy's response to the events of September 11 highlights the mobility, lethality and reach of naval forces.

On the home front, aircraft carriers, Aegis cruisers and destroyers, and numerous other ships rapidly responded to take station off the east and west coasts of the United States to guard the air and sea approaches to our shores in coordination with the U.S. Coast Guard and other military and civilian agencies ashore.

Forward deployed, U.S. naval forces were first on the scene and led the way for the joint force effort in Operation Enduring Freedom. Tomahawk shooters suppressed enemy air defenses while carrier strike aircraft projected power with precision munitions hundreds of miles beyond the sea. Marines, Navy SEALS, Seabees, and Special Operations Forces sustained by Navy forces from the sea all played key roles in freeing Afghanistan from the Taliban regime and the al Qaeda terrorist network.

The extraordinary warfighting flexibility demonstrated by U.S. naval forces this year is the result of the dedicated service of our active and Reserve Sailors and Marines and their civil service team members. It is a testament to our commitment to mission accomplishment. The U.S. Navy is ready to fight and win.

Forward deployed combat forces provide this nation with speed of response to an emerging crisis from forces that can be immediately employed from within a region. Before the most recent action in Afghanistan, naval forces had provided the same type of timely response on 86 occasions in the last decade alone, including 11 different combat operations. In fact, even before the events of September 11, the last 10 Navy carrier battlegroups to deploy, a span that began in 1998, have engaged in combat as part of Operation Allied Force in Southeastern Europe and/or operations in the Middle East. Additionally, in that time span, naval forces conducted non-combatant evacuation operations, conducted thousands of boardings in support of U.S. drug policy and United Nations sanctions, and participated in numerous humanitarian assistance operations. During crisis or conflict, forward-deployed and forward-based naval forces are positioned for timely response. The Navy-Marine Corps team stands ready, at the "tip of the spear," to assure access and to project joint and combined power in support of National policy.

STRATEGIC ENVIRONMENT AND NAVY TRANSFORMATION

The 2001 Quadrennial Defense Review (QDR) sets clear goals to assure allies and friends that the United States is a reliable security partner, to dissuade future military competition from potential adversaries, to deter threats and coercion against U.S. interests and decisively defeat any adversaries who have not been deterred from attempting to impose their will on the U.S., its allies or its friends. The QDR requires that we restore and then improve current readiness while transforming to address the circumstances of the 21st century. To support these goals, our sovereign naval forces must be able to enhance deterrence and, should that fail, assure sea-based joint force access to project offensive and defensive power ashore to defeat all adversaries.

New challenges, including the threat of cyberwar, weapons of mass destruction, continued international terrorism and the havoc wrought by failed states, define a most unpredictable future. These and other emerging threats will call for new deterrence options spanning the full range of threats facing our Nation. Technical advances in area-denial forces including mines, small boats, diesel submarines, sophisticated anti-ship cruise missiles, land-based aircraft and ballistic missiles have expanded the challenge in the littoral areas where naval forces must operate in order to maintain the ability to project power in support of national objectives.

To counter these challenges in the littoral, robust Surface Force warfighting capabilities must be maintained to guarantee the Navy's ability to sail into harm's way, and enable our assured access in the littorals throughout the world. These capabilities are achieved through multi-layered defense-in-depth, active and passive measures, teamwork and force synergy. The evolution of our warfighting systems must be kept "lock step" ahead of the emerging threat. As the threat evolves and becomes more capable, so must the Navy's combat systems. To remain ahead of this evolving threat we must field state-of-the-art capabilities as we continue to invest in next-generation research and development.

The Navy will meet the challenge of an uncertain future by continuing to transform our concepts, organizations, doctrine, technology, networks, sensors and platforms, weapons systems, training, education and our approach to manning. At the heart of this wide-ranging transformation is the implementation of network-centric warfare. This integration of sensors, information systems, platforms and weapons to achieve major increases in warfighting effectiveness will provide the framework for a transformed, balanced total force that will provide the Joint Force Commander with the "tool box" of capabilities necessary to fight and win against current and emerging threats.

The Surface Warrior's contribution to the joint commander's "tool box" of capabilities supports a family of shaping, offensive and defensive missions including assurance and deterrence, maritime strategic fires, expeditionary maneuver warfare, maritime strategic defense, ship self-defense, undersea warfare, and homeland security.

- Assurance and Deterrence—The enduring Navy-Marine Corps contribution to national security is combat-credible forward presence. surface Navy forces present and engaged forward—where our most vital economic, political, and military interests are concentrated—routinely provide a framework of security and stability that helps other instruments of national power to assure our allies and friends and to dissuade potential military competitors.
- Maritime Strategic Fires—The surface Navy provides cruise missile precision strike and naval surface fires capabilities vital to integrated joint operations across the spectrum of warfare.
- Maritime Strategic Defense—The surface Navy with a variety of existing and developing capabilities is postured to project defense over sea-based and land-based U.S. and Allied forces including theater air defense and theater ballistic missile defense.
- Expeditionary Maneuver Warfare—surface Navy forces play a vital role on the Navy-Marine Corps team that stands ready to project sea-based power ashore in support of joint, naval, or multi-national operations.
- Ship Self-Defense—This capability enhances the ability of all fleet units to survive and operate in an enemy area-denial environment and is at the core of the sea-basing concept that affords sustained access to naval forces and supports maneuver along the length and breadth of the joint littoral operations area unconstrained by political or sovereignty issue.
- Undersea Warfare—Command of the seas in both the open ocean and in the littorals is a pre-requisite for sea-basing and the surface Navy fields an array of existing and developing capabilities in anti-submarine and mine warfare to ensure freedom of maneuver, access, and freedom of trade on the sea.
- Homeland Security—The surface Navy is coordinating with numerous other government and military agencies, especially the Coast Guard to defend the air and surface approaches to our coast, ports, and waterways.

A CONTINUING CHALLENGE

The status of Surface Warfare today is healthy and improving. We are still the greatest Navy in the world. We have a credible, combat ready force with our primary emphasis on deployers. This year's budget submission shows real progress for fiscal year 2003 and through the Future Years Defense Program (FYDP) in support of our strategy to provide the robust warfighting capabilities necessary to pace the threat and support assured access. We are focused on providing warfighting capability and on providing the greatest flexibility for the least investment.

The Nation must continue to have a credible sea-based warfighting capability in the 21st century, ships that can go in harm's way and accomplish the mission to support the National Security Strategy. We must have sufficient force structure in both quantity and quality and be able to put the right mix of ordnance in sufficient numbers on target.

We have made progress over the last year in many areas but there is still significant work to be done. We will continue to seek improvement in current and future readiness with emphasis on transformational technologies and concepts to provide affordable solutions that will allow us to execute all of our missions and requirements. More importantly, we will endeavor to get those solutions rapidly into the fleet.

In my testimony below, I will first review our progress in maintaining and improving readiness before discussing our contribution to the Navy's network-centric warfare concept and our progress in support of the vital mission areas: maritime

strategic fires, maritime strategic defense, ship self-defense, undersea warfare, and homeland security.

READINESS—MANPOWER, MAINTENANCE, AND FUTURE FLEET

We are making solid progress in addressing long-standing readiness issues thanks to the leaders and sailors in the fleet and the support of the American people and Congress. Manpower, training, and maintenance posted significant levels of improvement over the last year and continued improvement is supported in the fiscal year 2003 budget submission. Although maintaining force structure will be a challenge, the Surface Ships joining the fleet today are the best in the world and we have a solid plan for the future with the DD(X) family of ships.

MANPOWER/TRAINING

Manpower is our biggest investment, comprising nearly one-fourth of our allotted budget. We must continue to look for economical and efficient methods for manning our ships. The surface Navy has no alternative but to transition from manpower- and workload-intensive ships to ships such as DD(X) and the LCS (which will be introduced in next year's budget submission) that will leverage new technologies to expand our warfare capabilities while optimizing manning levels. Roughly two-thirds of our community billets are at sea and the preponderance of these billets are in our Aegis ships. This coupled with the relatively long life expectancy of the Aegis Fleet has guided us to introduce the Smartship program into the fleet and our Aegis force. The Smartship program, which takes advantage of select technological enhancements to reduce manning requirements, is a useful vehicle to facilitate this transition from today's manpower intensive fleet to the optimally manned fleet of the future, designed around the principles of human-centered design (HCD) and human systems integration (HSI).

TRAINING STRATEGY

In addition to researching and adopting technologies to achieve optimal manning, and critical to our retention efforts, we must focus on development of our most valuable resource, the sailor. We are still engaged in a battle for people. To win this battle, we must deliver educational and personal growth opportunities for our sailors.

The surface Navy has adopted a strategy to reverse a trend that has seen training facilities and equipment become increasingly outdated and ineffective. The ultimate objective of this strategy is to provide optimally trained sailors to the fleet at the right time, establish and maintain their proficiency, and promote personal and professional development throughout their careers. This strategy focuses on tailored training, robust integrated training systems, mission area training and distance support. Through detailed billet and watch station task analysis and the installation and use of modern re-configurable trainers, we will be able to properly train sailors while at the same time replace outdated technical training equipment, rapidly update curricula, and phase out outdated training methodologies. Emphasis on mission area training will address fleet training requirements at the earliest stages of system design and acquisition, an approach that has proven successful for Aegis combat system training. Distance support will be essential for providing training "on demand" to support sailors' personal and professional development and to move all training administration off the ship.

To achieve these objectives, in the fiscal year 2003 budget submission we have accelerated installations of our principle shipboard tactical team trainer, Battle Force Tactical Trainer (BFTT), and invested significantly in training re-engineering projects that will lead to replacement of costly and out-of-date technical training equipment in our technical schools, earlier qualification of our junior officers as surface warfare officers and increased navigation, ship handling and seamanship proficiency training in our fleet concentration area schoolhouses as well as onboard the ships themselves.

JUNIOR OFFICER RETENTION

Junior officer retention is critical to the future of surface warfare and, though we are pleased with recent progress, there is still significant work to be done in this critical area. Junior officer (JO) retention remains at the top of our manpower concerns.

We monitor JO retention by comparing the number of officers that we accessed in a particular year with the current inventory for that same "Year Group." Our retention requirements are thus different for each Year Group, generally falling be-

tween 34 and 38 percent of officers remaining on active duty in the surface community at about the 7-year point. Our shipboard department head requirements are relatively stable. We require 245 officers to become department heads every year to fill our at-sea requirements without significantly over-touring these officers and gapping billets elsewhere in the Navy. To avoid confusion among different retention percentage requirements for different Year Groups, I will tailor my remarks to discuss our ability to meet the relatively stable at-sea requirements of 245 department heads per year for each Year Group.

In recent years, just under 200 officers a year were electing to continue their service as department heads. This led to increasing department head tour lengths to an average of 40 months and in some instances to as much as 50 months in order to cover all of our requirements. These extended tours led to significant junior officer dissatisfaction and worked further against our retention goals. To break this negative cycle, we established several innovative programs.

Surface Warfare Officer Continuation Pay (SWOCP) offers significant financial incentives to remain on active duty in the surface warfare community through two department head tours. 1,699 of the 1,713 available SWOCP contracts offered over the past 2 years were accepted, additionally 161 of the 275 contracts available this year have already been completed. Additionally, our "early roller" program accelerated careers of outstanding division officers to department head tours to cover some of these critical sea-going requirements. 115 outstanding young Division Officers have stepped forward and participated in this program to date.

We believe our strong commitment to graduate education for surface warfare junior officers is having a positive retention effect as well. We have increased the numbers of junior officers participating in graduate programs from 155 in fiscal year 2000 to 200 in fiscal year 2001, and already have 133 officers participating in fiscal year 2002. In addition, we have allocated funds to support 40 Graduate Education Vouchers (GEV), paying officers tuition up to $20,000 per year for 2 years. Our assessment to date indicates that graduate education and SWOCP are a powerful retention tools, and we continue to monitor our retention progress closely.

These efforts have been effective in reversing our declining Junior Officer population trends of recent years and we are approaching our goal of 245 officers per Year Group continuing their service through two Department Head tours. The average number of department heads produced by YGs 91 through 94 was 179—much lower than the goal of 245. YGs 95 and 96 on the other hand already have 219 and 223 contracted department heads. Except for the early rollers, these officers can be expected to start their department head tours over the next 2 years.

We are also continuing an aggressive resignation withdrawal campaign that has borne much fruit over the last several years. 27 officers have reconsidered their resignations in the first 3 months of fiscal year 2002. This is particularly significant when added to the 163 officers that withdrew their resignation requests over the previous 2 years.

We are not meeting our junior officer retention requirements yet, but we are trending in the right direction. Junior officers are our future; we will continue to focus our energies and innovations in retaining our best. We believe the future of the surface warfare community is at stake.

FLEET MAINTENANCE

Fleet maintenance is a pillar of current readiness. Recent world events have reinforced the need to maintain our ships mission ready to sail in support of national tasking. This is not an easy task in today's fiscal environment as we continually strive to balance the needs of today's Navy with the requirement to modernize and re-capitalize our fleet. With our smaller force, we must also focus on maintaining our ships with minimal disruption to ships' operational schedule to provide the maximum flexibility to our Fleet Commanders.

Our ability to predict ship maintenance requirements continues to improve. The Maintenance Requirements System (MRS) is in its third year of use and has matured considerably since its introduction. This system uses historical return costs and documented deferred maintenance to project future maintenance requirements. Under the guidance of the MRS Alliance, MRS is yielding a firmer, more rigorous requirement. This more credible requirement provided the needed rationale to increase our investment in depot maintenance in fiscal year 2003 budget submission.

Condition-based maintenance (CBM) processes and our ships' class maintenance plans further define our surface ship maintenance requirements. The maintenance support community has embraced CBM and is working hard at improving waterfront maintenance assessment processes and our ability to determine maintenance requirements based on evidence of need. Material condition information from these

assessments is directly fed back into the programming process to ensure adequate resources are devoted to ship maintenance. This information is also being used in new ship design efforts to reduce overall lifetime costs. Programs such as Capital Investment for Labor (CIL) and Cost Reduction and Effectiveness Improvement (CREI) are also investing in new technologies and ways of doing business that will directly affect maintenance requirements and sailor workload. A recent example of this is our fiscal year 2003 budget submission investment in magnetic couplings, a new technology that eliminates the requirement for our sailors to perform a time consuming alignment procedure. In the President's budget submission, we are planning to procure and install 176 magnetic couplings per year for the next 4 years. This initiative not only has a high maintenance return on investment, but also significantly reduces the sailor workload. This is a win-win for both the sailor and the maintenance community and demonstrates our commitment to reducing sailor workload and improving quality of service.

In the fiscal year 2003 budget submission, we funded depot maintenance to 91.6 percent and intermediate maintenance to 95 percent of the OPNAV assessed requirement. Although deferred maintenance is expected to grow when funded at less than a 100 percent investment level, MRS captures this shortfall and includes a portion of the deferred maintenance in the annual continuous maintenance (CM) requirement.

We remain committed to providing ships that are supported to a realistic and executable maintenance requirement and ready to respond to operational tasking.

BUILDING THE FLEET OF THE FUTURE

As the Chief of Naval Operations has pointed out in his previous congressional testimony, the surface combatant fleet is, on average, relatively young, but the rate of ship recapitalization bears watching. We must procure an average of nine ships per year in the later years of the FYDP to sustain today's fleet and to provide stability for our defense industrial base. As VADM Mullen, DCNO for Resources, Requirements and Assessments, stated in his previous congressional testimony, Navy leadership is committed to improving the recapitalization rate of the Navy, particularly in the area of shipbuilding. Our current budget sets the foundation for the future by investing in impressive programs that will comprise the core capabilities of our force in the years to come. The continuing production of *Arleigh Burke* destroyers, the planned production of a family of new surface combatants—the advanced destroyer, DD(X), the advanced cruiser, CG(X), and the LCS—the *Ticonderoga* Cruiser Conversion program, and the Joint Command and Control Ship JCC(X) program present impressive technological leaps in warfighting capability, innovation, and reliability.

DDG–51

The DDG–51 class guided missile destroyer program remains the Navy's largest surface ship program. The fiscal year 2003 budget request includes $2.29 billion for the procurement of two DDG–51 class destroyers. The request adds six additional destroyers to the procurement profile, two additional ships per year in fiscal year 2005 through 2007. The addition of the six DDGs addresses three issues: mitigates the industrial base gap issue between DDG–51 production and DD(X) construction that was evident in prior budgets; better stabilizes the surface combatant build rate as we transition to DD(X); and stabilizes future surface combatant force structure in the 2012 time frame. A new 4 year, fiscal year 2002 through 2005, multiyear procurement contract solicitation draft has been recently released. It is anticipated that a contract will be awarded for these eight ships plus options this summer.

The two *Arleigh Burke*-class destroyers procured in fiscal year 2003 will be Flight IIA ships configured with the Baseline 7 Phase I Aegis combat system, which we introduced on the third ship in fiscal year 1998. This baseline incorporates new integrated mission capability and makes these ships more capable in the littoral than any other combatant in the world. The upgrades include the SPY–1D(V) radar system, Cooperative Engagement Capability, and a 5″/62 gun. Additionally, the DDG–51 destroyers of the fiscal year 2002 multiyear procurement will be forward fit with Baseline 7 of the Mk 41 Vertical Launching System, the Tactical Tomahawk Weapons Control System and the ability to accommodate the MH–60R helicopter variant.

THE FAMILY OF SHIPS

The Report of the Quadrennial Defense Review Study and the Navy's leadership have recognized that assuring access to key regions abroad and projecting power, in its various forms, requires a broad range of naval capabilities. These disparate capabilities can best be satisfied by a family of ships, each of which, while capable

of multiple missions as necessary and prudent, is optimized to perform a key function:

- **Advanced Multi-mission Destroyer, DD(X),** for delivery of precision strike and volume fires to support assured access and maneuver warfare.
- **Advanced Cruiser, CG(X),** to provide air superiority against cruise missile and ballistic missile threats over the total force.
- **Littoral combat ship, LCS,** capable of defeating littoral defenses including mines, fast small boats and diesel submarines. (fiscal year 2004 program start)

Power projection ashore at the high end of the spectrum of conflict (as well as concomitant force-protection and assured-access requirements) demands the high-volume firepower, long-range precision-strike capability, ample magazine capacity, and enhanced endurance of sizeable multi-mission combatants.

However, the intricacies of the littorals demands more expansive, detailed "coverage" inshore which, as currently envisioned, may be satisfied by a multiplicity of smaller, high-speed, and highly maneuverable ships working in close concert with a distributed, netted force of multi-mission ships.

DD(X) and CG(X) will be larger, multi-mission warships, with specialized mission systems and significant ordnance payloads. They will be optimized to deliver "fires for effect" in both land attack and high-end force protection. They will be designed to be highly survivable in expeditionary operations and will provide defense-in-depth for smaller focused-mission ships.

LCS will be a smaller ship with an advanced hull design, optimized specifically to operate close inshore. Key attributes of LCS will be stealth, speed, and maneuverability. Missions envisioned for LCS include mine warfare, anti-surface warfare, and anti-submarine warfare against quiet diesel submarines. LCS will be capable of operating self-sufficiently for extended periods in a low-threat environment, including homeland security/defense missions in conjunction with USCG forces. LCS is a new program that will be addressed in the fiscal year 2004 budget submit. Nevertheless, it is appropriate to address it in this fiscal year 2003 supporting testimony as it will play a significant role in the 21st century Navy force structure.

In-service Aegis ships, also within this family of ships, will be upgraded through evolutionary upgrades and back fit of technologies in the DDG–51 production line and by back fit of CGs in the Cruiser Conversion program to keep them current and viable in the littoral for their entire life span.

SPIRAL TECHNOLOGY TRANSFER

Using a spiral development approach will allow technologies to be fielded when they are ready through a flight approach and lessons learned/technology sharing between programs, forged to capture cutting edge initiatives. As DD(X) drives the development of technology in many areas, we will look for opportunities to backfit advancements on existing platforms. Carefully focused upgrade and conversion programs will ensure the existing core of surface combatants maintain the capability for battlespace dominance. The spiral technology development process of DD(X) and LCS will enable the most efficient insertion of high pay-off technologies into the Family of Ships with the least amount of risk. DD(X) and LCS will be developed in parallel and on complementary time lines.

- CG(X) will share a common hull form and propulsion plant architecture with DD(X) and will use many of the same innovative technologies to reduce crew size, increase joint C^4I connectivity, and reduce operating and support costs.
- LCS will benefit from the DD(X) technology development by taking advantage of advanced automation technology, high density propulsion plants and increased nodal and C^4I connectivity.
- In-service Aegis surface combatants will receive technology upgrades that will extend their combat capabilities and keep them at the leading edge of combat effectiveness.

DD(X) ADVANCED DESTROYER

DD(X) will introduce a wide range of technology for naval ships but, moreover, it will be the first deploying combatant ship of a new family of 21st century multi-mission ships. DD(X) will integrate advanced command, control, communications, intelligence, surveillance, and reconnaissance systems to achieve an unprecedented level of knowledge of the battlefield. To ensure effective operations within the littoral, DD(X) will employ state-of-the-art sensors combined with unsurpassed radar, acoustic, magnetic, and infrared signature reductions exceeding those of all previous

warships, including DDG–51. Active and passive self-defense systems, as well as cutting edge survivability features (including modular ship systems and in-stride mine avoidance) will enable DD(X) to fulfill the full spectrum of battlegroup missions assigned to our destroyers today, and to fight through damage.

DD(X) will have the capacity to carry the variety and volume of offensive, precise firepower, which will enable our Marine Corps and light, mobile Army forces to complete their missions. These systems include Tactical Tomahawk and the Long Range Land Attack Projectiles (LRLAP) with a range of 100 miles, and will have the growth potential to include an ALAM. DD(X)'s ability to deploy a high volume of precision-guided munitions will provide Joint Force Commanders with significantly improved ranges, accuracy, volume, firing rates and response times compared to current-generation ships.

In order to ensure the ship's ability to perform its primary naval fires mission, the DD(X) design is structured to incorporate several "leap ahead" technological advances. This represents a "win-win" investment for the Navy as many of DD(X)'s advanced technology developments will benefit other ship classes. DD(X) will be the catalyst for:

- **Integrated Power System (IPS)/Electric Drive:** All-electric architecture that provides electric power to the total ship (propulsion and ship service) with an integrated plant. Benefits include reduced operating costs, improved warfighting capability, and architectural flexibility.
- **Advance Gun System:** 155mm gun with "fully automated" ammunition handling system and a family of munitions/propelling charges specified to achieve ranges of up to 100 nautical miles. AGS will provide high rate-of-fire (approximately 12 rounds per minute) with a magazine capacity sufficient in size to meet USMC operational requirements. Features of the AGS design will provide the basis for future naval gun systems.
- **New Radar Suite (Multi-Function Radar (MFR)/Volume Search Radar (VSR):** MFR provides DD(X) and other applicable surface combatants with affordable, high performance radar for ship self-defense. The MFR will greatly enhance ship defense capability against all threats envisioned in the littoral environment. VSR provides DD(X) and other applicable surface ships with an affordable, high performance air search radar. Both MFR and VSR should reduce manning and life-cycle costs compared to the multiple systems that perform these functions today.
- **Optimized Manning through Automation:** Use of initiatives, such as advance system automation, robotics, human centered design methods, and changes in Navy personnel policies, will allow DD(X) to meet mission requirements with significantly reduced crew size while improving the sailor's quality of service. Lessons learned from DD(X) can be applied to future surface ship and submarine designs.
- **Total Ship Computing/Software Development:** Key to meeting optimal manning requirements is affordable open systems architecture technology insertion/upgrades to future ships. By taking advantage of commercial advances in computer processing power, distributed/integrated data networks and software development, total ship computing enables a "plug and play" environment for all internal and external user systems.
- **Integrated Apertures:** In addition to reducing the ship's radio frequency (RF) signature, shared apertures will reduce topside antenna crowding, decrease topside weight, and simplify antenna maintenance. Shared aperture technology has the potential to benefit many other Navy programs.
- **Survivability:** DD(X) is developing system and protection concepts that are intended to reduce vulnerability to conventional weapons and peacetime accidents under reduced manning conditions. Development areas include damage control computer-based systems that provide rapid systems restoration, fire protection devices that improve probability of survival with a reduced crew ship, and ship protection concepts that reduce magazine and commercial equipment vulnerability.
- **Stealth:** Operations in the littoral battlespace has made stealth an essential element of new combatant design, particularly radar cross-section reduction. The lessons learned by DD(X) will provide new insight toward all aspects of ship, sensor and weapons design.

The DD(X) family, with its transformational technologies, will be the cornerstone for a family of next-generation surface combatants. These combatants must be affordable to produce and less costly to operate. They must be designed from the keel up to enable dramatic, 50 to 70 percent, manpower reductions.

Many of these technologies planned for DD(X) were intended to be incorporated into the DD 21 program. However, the DD 21 program allowed little technical risk reduction, though many of the technologies are quite transformational. With DD 21, we were taking a single step to full capability. There was a success-oriented assumption that everything would proceed on schedule and cost. There were limited opportunities for prototyping and little room for error. In the end, these factors resulted in a program with unacceptable cost growth risk. Thus, DD(X) was formulated to employ a broad range of strategies to make our entire family of next-generation surface combatants, the DD(X), CG(X) and LCS, more affordable.

To mitigate the high technical risk; the restructured DD(X) program adds several land-based and sea-based prototypes for the key technologies. This provides a practical means of reducing risk within each area. The Navy will see potential problems earlier in the process, providing us a better chance to efficiently solve them. This strategy improves the chances of delivering a functional destroyer within cost and schedule.

Additionally, the Navy plans to produce the lead ship using RDT&E funds. RDT&E funding recognizes that the lead ship design will mature during the design and construction process and may require a more flexible funding medium than SCN to compensate for technology development or schedule issues. This approach is supported by ASN (RDA) and USD (AT&L).

The Navy can react to problems without the risk of resorting to prior-year completion funding. The program manager can focus on establishing an efficient process for manufacturing the DD(X) class and avoid trading away production initiatives if costs increase. Being able to adjust the RDT&E budget for the lead ship provides the best chance to control costs and define a production process that allows the Navy to affordably build these next-generation surface combatants.

Construction of the lead ship in RDT&E is a significant change in the Navy's approach to shipbuilding, which the Navy hopes the committee will support.

Navy's fiscal year 2003 shipbuilding program also provides flexibility for a smooth transition in DD(X) production. Given production approval by Navy and OSD, SCN funds allocated to fiscal year 2006/fiscal year 2007 DDG–51 class destroyers may be reallocated in future budget submissions to provide uninterrupted follow-on class production of the fiscal year 2005 RDT&E lead ship.

CG(X) ADVANCED CRUISER

The CG(X) will be built with the same hull and propulsion plant as DD(X). The combat system will take advantage of emerging technologies to provide sustained, theater-wide strategic defense against aircraft, anti-ship cruise missiles, and theater ballistic missiles.

LITTORAL COMBAT SHIP (LCS)

The LCS will be a focused-mission ship. Built on a time line complementary to, but shorter than, that of the DD(X)/CG(X) family, it will be a practical, significantly smaller surface combatant capable of performing focused missions in places where it would be impractical or unwise to commit a larger, multi-mission surface combatant. Commercial hull technologies will be leveraged to develop these modular mission package platforms, primarily focused on missions related to battle space access.

In a sense, this is new ground and a significant opportunity, as we will be building our 21st century surface combatant fleet from the keel up with the full awareness that it will operate as a netted, distributed force. We will need the focused-lethality of the Littoral combat ship to accomplish specific missions, while the multi-warfare, multi-mission DD(X) and CG(X) platforms provide the wide area battle space dominance for which they are uniquely suited. Away from home waters and particularly in water space immediately adjacent to adversarial coastlines, access will be a challenge. Area denial defenses close to land will be neutralized by multi-mission surface combatants working in close coordination with specially designed, netted and configured Littoral combat ships, exercising the capability to counter mines, small surface combatants and the shallow water warfare threat posed by diesel submarines.

Importantly, with its size, speed and modular design characteristics, LCS has the potential to serve as a platform for mutual development with the United States Coast Guard's Deepwater Program. In this capacity LCS may provide the foundation for the Nation's interoperable U.S. Navy and U.S. Coast Guard force engaged in homeland defense. We are continuing to explore these possibilities with the Coast Guard as we both move forward with these important ship development programs. LCS will also be particularly suitable for foreign military sales, potentially providing our coalition partners with a state-of-the-art surface combatant that will ensure con-

tinuing interoperability among our navies. In fiscal year 2003, the LCS program consists of the analysis of several ongoing experimental ship efforts. Development and production funding will be addressed in the fiscal year 2004 budget submission.

CRUISER CONVERSION

While building new platforms for the future is a prime priority, maintaining and modernizing our current platforms enables them to continue to be valuable warfighting assets in the years ahead while concurrently trying to mitigate escalating support costs of aging equipment. As technological cycle times are now shorter than platform service life, it is fiscally prudent and operationally imperative to modernize the force through timely upgrades and technology insertion. In support of this priority, we plan to modernize the *Ticonderoga*-class cruisers. Our technology insertion efforts include the Smartship initiatives and a spectrum of new capabilities on other combatants for both existing and in-development ships to be used to extend the combat system service life of these vital multi-mission platforms. The fiscal year 2003 budget request includes $104 million in RDT&E funds to continue the engineering efforts to meet the schedule for the first installation, which will occur in fiscal year 2006. The upgrade of these ships will add new, and enhance existing, combat system capabilities for maritime strategic fires, cooperative engagement capability, force protection, and area air defense commander missions as well as increase service life with hull, mechanical, and electrical upgrades. These new mission capabilities will dramatically improve the ability of these warships to operate in joint and coalition warfare environments and the littorals. The program is essential to maintaining a mission-relevant force of approximately 116 surface combatants over the next 20 years.

JCC(X)

JCC(X) will provide the JFC and staff with enhanced mission capability for joint campaign management. It will also provide naval component commanders with capabilities for operational control of assigned naval and allied forces. JCC(X) will support planning and command and control of a full spectrum of joint and multinational efforts including:

- Major Theater War
- Forward Presence/Peacetime Engagement
- Peacekeeping/Peace Enforcement
- Humanitarian Assistance/Disaster Relief
- Non-Combatant Evacuation Operations

The program entered concept exploration and definition in November 1999 and has developed a range of alternatives which will be used to decide the controlling characteristics of the ship. The fiscal year 2003 budget request supports construction of the JCC(X) within the FYDP. The final definition of the program will be addressed in the fiscal year 2004 budget submission.

NETWORK-CENTRIC WARFARE

The Navy's cornerstone warfighting concept of network-centric warfare derives maximum force warfighting potential through rapid and robust networking of diverse, well-informed and geographically dispersed warfighters. This requires the integration of systems, weapons and communications networks in which the right information is available to the right system or operator at the right time. Naval forces, dispersed or concentrated, with shared awareness of the battle space and a solid understanding of the commander's intent, are prepared to exploit opportunities as they arise without reliance on centralized control procedures. The command and control environment of the future must be capable of contending with the complexity of the battle space.

Network-centric operations are based on a robustly networked system of sensors, decision aids, weapons, warriors, and supporting systems to support joint and naval forces in their execution of missions across the entire range of military operations. FORCEnet is the Navy's overarching, integrating concept through which network-centric operations will be implemented by Naval forces. It will provide the architecture of networks, the joint infostructure, web-based infrastructure, and network security for the conduct of network-centric warfare.

The surface Navy's cooperative engagement capability (CEC) system will contribute significantly to the force level integration that FORCEnet is introducing and ensuring interoperability of this and other systems at the battle group, fleet, and joint levels is a major initiative to support network-centric operations. Sea-based joint command and control is another pillar of the FORCEnet concept and the area air

defense commander (AADC) program and the naval fires network (NFN) program are prime examples of the type of transformational systems the Navy is fielding to advance our goal of universal situational awareness. We have made significant progress in CEC, interoperability, AADC, and NFN over the last year and, through the fiscal year 2003 budget submission, we are postured to continue to advance these revolutionary capabilities.

COOPERATIVE ENGAGEMENT CAPABILITY

Cooperative engagement capability is a system, in the fleet today, which provides a revolutionary capability in force-level integration for area defense and ships self-defense. Given increased speed and kinematics of the evolving threat, CEC integrates existing sensors and weapons more effectively across the force. The sensor netting approach employed by CEC allows many sensors throughout the force to work together to form a single composite track for each target in the battle space. As a result, CEC delivers significant improvement in force level detection and tracking, including improved track identification (ID) continuity, improved track accuracy, and improved situational awareness for all ships and aircraft in the force. Additionally, because CEC generates real-time fire control quality tracks, it brings significant engagement improvements including increased depth of fire, engagement of targets not held by own ship sensors, increased reaction time and maximized performance against the most stressing targets. As the only system based on shared fire control quality information, CEC provides the cornerstone to build the single integrated air picture (SIAP). This capability not only contributes to the ship self-defense of the platforms on which it resides, it also protects all naval units by "buying back" battle space, the capability of greatest value in countering a fast moving threat. It provides time for alertment, decisions and actions and allows our weapons to shoot to the maximum flight capability of the missile rather than to the limit of one ship's sensors.

Over the past 2 years, CEC has been rigorously tested to ensure full integration across current fleet combat systems and data links. The system successfully completed the largest operational evaluation conducted by the Navy to date in the spring of 2001 and was found both operationally effective and operationally suitable by the Commander, Operational Test and Evaluation Force. This highly robust and operationally realistic test series consisted of 10 underway test events over 2 years involving 10 warships, hundreds of aircraft sorties in support of challenging test scenarios, and nearly 30 missile firings.

Subsequently, the Joint Requirements Oversight Council (JROC) has re-validated the system's operational requirements and we have continued to work closely with the Office of the Secretary of Defense to ensure compatibility with the evolving global information grid (GIG) architecture. The GIG architect has concurred that CEC is compliant with the 2003 GIG architecture although some work remains to ensure that CEC keeps pace as the GIG continues its evolution. Further, we are currently anticipating a favorable decision from the Defense Acquisition Board (DAB) that approves full-rate production of our surface-based CEC units and continues low rate initial production of the airborne units for the E–2C Hawkeye aircraft.

The way ahead for this vital system consists of continuing the spiral development of CEC as we increase the number of cooperating nodes in the CEC sensor network (potentially including joint assets); examine CEC's potential as the foundation of the joint composite tracking network that will facilitate the development of a single integrated air picture (SIAP); ensure continued compliance with the GIG architecture; and examine alternative, potentially bandwidth-reducing, technologies. In short, Navy stands ready to field a system that is and will remain:

- Operationally effective
- Operationally suitable
- GIG-compliant
- JROC-validated

CEC is a dramatic improvement in area and ship self-defense for multiple ship classes.

There is also growing international interest in this revolutionary new capability. This past summer, the U.S. Navy signed a memorandum of understanding with the United Kingdom that will ultimately lead to CEC being installed on Royal Navy frigates and destroyers. Additionally, other Allied Nations including Australia, Spain, Italy, Germany, Netherlands, and Japan have also expressed interest in CEC. Specific requests by these nations will be handled on a case-by-case basis.

The CEC program has been a success story this year. The *John F. Kennedy* battle group deployed with CEC last month and we added significant funding to accelerate fielding and further development of CEC and sensor netting technologies in this

budget cycle. This revolutionary capability will now be installed in most battle groups by fiscal year 2007.

FORCE INTEROPERABILITY—DISTRIBUTED ENGINEERING PLANT

The force-level integration generated by systems like CEC provides vast improvements in ship self-defense by buying back battle space that allows extra time for decisions and actions in today's challenging ASCM environment. The integration of multiple systems in a force with different levels of capability creates a challenge to ensure interoperability between all the units in a force. The objective of the Navy's force interoperability program is to engineer interoperability into our systems. Improved interoperability brings significant warfighting capability through increased situational awareness, enhanced weapons coordination, and reduced fratricide, enabling our combat systems to operate at their full design performance level and contributing to the development of a SIAP. This is critical to close-in ship self-defense but even more critical to timely engagement of the "archer" vice the "arrow", the ultimate ship self-defense objective.

The Navy's force interoperability program is divided into three functional areas: assessments, readiness, and warfare systems engineering. The foundation of this effort has been the establishment of a series of a land-based test sites that support testing of essential fleet combat system upgrades before they are introduced in the fleet. By networking these sites together into a distributed engineering plant (DEP), we can conduct rigorous force wide interoperability testing and engineering among different combat systems, including the examination of specific battle force configurations, before the software is deployed at sea. The DEP continues to evolve, leveraging existing engineering infrastructure to transform the Navy. Since 1998, when the Navy initially linked existing land-based combat system facilities together to conduct realistic battle force interoperability testing, the program has evolved to include tailored interoperability testing for every deploying battle group. This testing has enabled the development of interoperability measures of effectiveness (MOEs), and the ability to relate these MOEs to operational performance in terms of extended warfighting battle space.

The Navy has initiated the correction of the prioritized interoperability deficiencies found during DEP testing. Beginning in fiscal year 2003, we have "closed the loop" from identification of deficiencies, to collection and analysis of data, to identification of root causes, to implementation and follow-up testing of prioritized fixes which yield the greatest warfighting return on our investment.

As we draw lessons from the interoperability testing of today's combat systems, we are simultaneously feeding the results into the development of tomorrow's combat system baselines. As we explore the transformation of the existing Aegis Baselines into an open architecture, distributed processing combat system, we intend to build these interoperability enhancements into our new systems from the ground up. Following the successful transition to a complete COTS computing environment on our new construction Aegis DDGs, Aegis baseline development will introduce an open architecture, high performance, interoperable and network ready software architecture, which will eliminate many of the interoperability limitations of today's combat systems.

As the DEP has continued to mature and expand, it has become evident that the role of this powerful engineering tool must be expanded to support the Navy acquisition process, in addition to the deploying forces. From its inception in 1998 through 2000, the full efforts of the DEP remained focused on battle group interoperability testing. However, beginning in 2001, the DEP team established new initiatives—in addition to full battle group testing operations—to help program managers find and resolve problems earlier in the acquisition cycle. In fact during 2001, for the first time, 45 percent of DEP utilization was dedicated to supporting development work. For example, the cooperative engagement capability program, which has rapidly become the DEP's second largest user, has been able to test 46 percent of CEC's interoperability requirements in the DEP, substantially reducing requirements to do live shipboard testing, and therefore shifting this burden from the fleet to the shore infrastructure.

The fiscal year 2003 budget submission continues to support this most important interoperability testing and engineering development effort.

JOINT INTEROPERABILITY

In addition to the Navy's force interoperability program, last year the Joint Requirements Oversight Council (JROC) established the Office of the SIAP System Engineer, modeled after the Navy's SIAP Engineer effort, to begin working interoperability issues across the Services. The office has been established as a Navy-led joint

program office, whose initial focus will be resolving interoperability issues currently existing in the tactical data links used by all the Services. Navy remains closely aligned with this joint initiative as we move forward in addressing interoperability issues.

COMMAND AND CONTROL SYSTEMS

Installing new or improved weapons systems and integrating them at the shipboard and force level will dramatically improve naval forces ability to project power and to provide area and ship self-defense. New and innovative command and control systems will significantly enhance warfighting effectiveness by reducing confusion and coordinating the efforts of all the units in a force. Examples of such command and control systems are the area air defense commander program and the naval fires network program which have both been accelerated over the last year and are fully supported in the fiscal year 2003 budget submission.

AREA AIR DEFENSE COMMANDER

The area air defense commander (AADC) program will provide naval forces significant new joint integrated air defense (JIAD) capability and buy back more battle space and decision time. The objective of AADC is to provide an essential joint air defense planning and execution tool. AADC provides a means to conduct detailed and comprehensive air defense planning, including air space deconfliction and the optimal stationing of air defense and theater ballistic missile defense assets. AADC is being developed to be fully interoperable with the Army and Air Force air defense planning systems. Through high-resolution displays and robust communications, the AADC module also provides the capability to serve the air defense commander through the entire range of conflict from minor crisis to major theater conflict.

In the wake of the September 11 attack, we identified AADC as one of the systems that would better enable our forces to conduct forward-deployed operations and homeland defense and re-baselined the program to develop and deliver a system to the fleet today vice the scheduled fiscal year 2005 introduction date. Through this realigned program, we installed one unit this year on U.S.S. *Blue Ridge* and intend to continue installs into next year and across the FYDP, significantly accelerating the delivery of this revolutionary warfighting capability to the fleet and, potentially, joint forces. This rapid fielding strategy increased planned unit procurements by an additional 6 units to a total of 17 units across the FYDP.

NAVAL FIRES NETWORK

Within the specter of command and control enhancements, the naval fires network (NFN) was developed to provide the network-centric infrastructure and processing capability (software and hardware) required to support CVW strike, surface strike, land attack, expeditionary fire support, and anti-submarine missions in support of joint and coalition forces. NFN will be integrated into all phases of the time-critical strike/targeting (TCS/TCT) process, connecting the sensor grid, information grid, and weapons grid. NFN's overarching goal, integrated with the distributed common ground station (DCGS) architecture, is to collect, process, facilitate fusion of and disseminate data from a variety of disparate, geographically-separated, dissimilar joint sensors (including space-based sensors) and provide it to the warfighting community in a timely enough manner to identify, target, engage (re-engage, if necessary), and destroy enemy targets. NFN's multiple sources of fused intelligence, distributed throughout the battle-space, ultimately builds commanders' confidence, facilitating rapid decision-making. This common picture, the basis for engagement decisions, is electronically linked to mission planning and engagement systems. NFN digitally connects sensors, through decision makers, to shooters. This provides a TCS/TCT capability and enhances our deliberate targeting ability in every area of warfare including ship self-defense. NFN provides the commander with time critical intelligence, yielding enhanced situational awareness and therefore, better force posturing for self-defense.

Using the Defense Emergency Response Fund (DERF) provided by Congress, we have accelerated deployment of this vital system. Our budget request ensures continued rapid deployment of this significant situational awareness and time critical targeting capability.

MARITIME STRATEGIC FIRES—PROJECTING PRECISION FIRES

Our Navy continues to be a ready and relevant offensive maritime force, with increased emphasis on precision strike and naval fires as a vital, emerging mission area to support joint and expeditionary warfare. We will continue to develop our

long-range precision strike arsenal, and be capable of conducting precision land attack in concert with joint and coalition forces.

This naval fires mission area includes several existing and new capabilities, such as long-range strategic precision strike provided by the Tomahawk cruise missile, and precision naval surface fire support to Marines and other ground forces delivered by a combination of gun systems.

Our surface naval fires programs are addressing Navy, Marine Corps, and Army needs for today, tomorrow, and the future. Naval fires include a combination of guns, projectiles, and missiles to meet expeditionary maneuver warfare and Army transformation force requirements. These gun and missile capabilities complement each other and together will continue to improve and meet Marine Corps and Army requirements in terms of range, lethality, accuracy, and responsiveness.

TOMAHAWK

Since the success of the initial 1991 Operation Desert Storm firings, Tomahawk has transformed our Nation's tactical approach to modern warfare. Today, Tomahawk is a vital CINC asset—the Nation's premier deep strike weapon. Tomahawk provides long-range, highly survivable, unmanned, all-weather precision strike capability from warships at sea. As a result, the Nation has come to rely on Tomahawk to meet an ever expanding number of key warfighting mission requirements, including suppression of enemy air defenses, destruction of vital C^4I nodes, proportionate and surgical destruction of critical warfighting infrastructure, and engagement of time-critical targets.

With an average of over 100 Tomahawk missiles expended each year in conflict, Congress approved a 1998 reprogramming of existing Tomahawk funds to field the Tactical Tomahawk (Tactom) weapon system—the follow-on to the Block III missile. Applying modern manufacturing technologies to Tomahawk's core competencies, Tactical Tomahawk reduces unit production cost ($569,000 in fiscal year 1999 dollars) while lowering life cycle cost and increasing the weapon's tactical flexibility. Tactom improves responsiveness and flexibility by providing an improved anti-jam GPS capability, a satellite data link, reduced mission load and alignment times, increased accuracy, improved reliability, the capacity to loiter and then engage on demand, an ability to flex via the data link to a preplanned alternate target or to a real-time emerging target, and a flexible design that can carry alternate payloads in the future. Tactom, the associated Tactical Tomahawk weapon control system (TTWCS) and the Tomahawk planning system (TPS) will ensure Tomahawk continues to expand in capability to meet tomorrow's land attack warfighting challenges head on.

Commencing with the first Tomahawk wartime expenditures during Operation Desert Storm in 1991, the Navy has fired more than 1,100 Tomahawk missiles in combat. Most notably, the Navy fired over 600 missiles in fiscal year 1998/1999 during Operations Desert Fox and Allied Force and recently, more than 80 Tomahawk missiles in the first phase of Operation Enduring Freedom. Approximately 90 percent of all Tomahawk missiles expended in Operations Desert Fox and Allied Force and 70 percent fired in Operation Enduring Freedom were launched from surface ships. These surface ship expenditures represent approximately 20 percent of the total Tomahawk inventory produced to date.

As a direct result of the high combat expenditures in Operations Desert Fox and Allied Force—and in recognition of Tomahawk's increasingly important contribution towards achieving our warfighting objectives—Congress provided a fiscal year 1999 emergency supplemental of $431 million. This supplemental funded the conversion of 424 Block II missiles to the preferred Block III GPS variant as well as the remanufacture of 200 Tomahawk anti-ship missiles (TASM) to the Block III configuration. The induction of these missiles into the depot commenced October 1999. This effort, known as REMAN I, will complete in May—7 months early.

Earlier this year, as a result of actual and anticipated Enduring Freedom expenditures, a second conversion/remanufacturing effort was funded with $350 million from the fiscal year 2002 emergency supplemental. This effort, known as REMAN II, will convert the remaining Block II missiles and will remanufacture additional TASM and former surface nuclear Tomahawks missiles. REMAN II will deliver the first of 450 additional Block III missiles in January 2003, completing approximately 15 months later. Approximately 330 TASM and former surface nuclear missiles will remain as candidates for a third remanufacture effort if funding becomes available this year or next.

In the wake of the 11 September attack, we also increased the Tactom procurement profile. We added 362 missiles to the 1,353 missiles funded by the fiscal year

2002 profile. The PB03 profile now procures 1,715 Tactom missiles through the FYDP. The first of these Tactom missiles delivers in May 2004.

We are also teaming with the Defense Threat Reduction Agency to field a Tactical Tomahawk penetrator variant (TTPV). TTPV will address a substantial portion of the weapons of mass destruction hardened and deeply buried target set. The initial buy is programmed for 130 missiles, with an IOC scheduled for fiscal year 2005.

The two Block III remanufacture efforts, coupled with the increased PB03 Tactom missile procurement profile, will increase missile inventory to approximately 2/3 of the Navy's Tomahawk requirement by fiscal year 2009—assuming no future expenditures. While this approach of combining Remans and Tactom is clearly the best way ahead, current funding does not yet fulfill warfighting requirements.

Just as Tomahawk has provided the national strike weapon, Tactical Tomahawk, with its capabilities for loiter and in flight retargeting, will also provide a significant land attack weapon, especially suited for targets beyond the 100 nm range of future guns.

NAVAL GUN SYSTEMS

The Navy's approach for tomorrow's fleet is to develop a set of NSFS weapon systems to install in existing Aegis ships. These weapon systems include the 5″/62-caliber gun and the extended range guided munitions (ERGM). These NSFS capabilities are expected to meet USMC requirements in accuracy, lethality, and responsiveness.

5″/62-CALIBER GUN

The 5″/62-caliber gun is already installed in eight *Arleigh Burke*-class ships, commencing with U.S.S. *Winston S. Churchill* (DDG–81). The gun was successfully tested during a firing exercise in DDG–81 in fall 2001. This new gun will provide significantly better reliability, require less maintenance, and will fire the ERGM to an objective range of 63 nm.

As mentioned above, the 5″/62 gun is already in the fleet on recently commissioned DDG–51 class ships and the fiscal year 2003 budget request supports installation of 5″/62 guns on all following DDGs. 5″/62 installation is also planned for some *Ticonderoga*-class cruisers as part of cruiser conversion.

EXTENDED RANGE GUIDED MUNITIONS (ERGM)

ERGM has overcome significant technical challenges and stands as a most important naval surface fires system program. A December 2001 controlled vehicle test shot yielded successful rocket motor performance and proper functioning of the ERGM's guidance package which uses GPS to guide to target. Testing continues during 2002.

Navy made a recent decision to change ERGM's payload to a unitary warhead vice the originally planned submunitions, improving lethality against the target set. The ERGM IOC will shift to fiscal year 2006 to support development of the unitary warhead, and will provide precision fires in support of expeditionary maneuver warfare. ERGM extends gun ranges to 63nm—a significant improvement over the 13nm range afforded by conventional 5" rounds.

ADVANCED LAND ATTACK MISSILE

To meet the full set of USMC NSFS requirements,—an AoA for an ALAM was conducted. We envision that ALAM will be fielded in DD(X) as a spiral development and may be backfit in our current Aegis ships, and potentially submarines. The AoA provided Navy and OSD leadership with potential technical options. We anticipate ALAM will completely address the full NSFS target set, including mobile/moving targets, and hardened and deeply buried targets. Competing priorities precluded inclusion of ALAM in the fiscal year 2003 budget submission. Navy is addressing the initiation of an ALAM program in the fiscal year 2004 budget development process. As an interim effort to meet near term NSFS requirements, the fiscal year 2003 budget submission fully funds the Tactical Tomahawk program, providing the most efficient balance for strike and NSFS requirement.

NAVAL FIRES CONTROL SYSTEM

In order to safely and effectively employ long-range, precision-guided weapons in support of complex amphibious and joint land battle operations, we are developing the naval fires control system (NFCS). NFCS is a battle management system that will automate NSFS functions and be the enabler for surface land attack in net-centric warfare. NFCS will support mission planning for the 5″/62-caliber gun, ERGM, as well as conventional rounds, and support evolving expeditionary warfare capabili-

ties, tactics, and doctrine. NFCS will be interoperable and consistent with joint C[4]ISR systems. NFCS ties the Navy into the digital battlefield, and will be completely interoperable with the Army and Marine Corps' advanced field artillery tactical data system (AFATDS). NFCS will IOC in fiscal year 2003. The first NFCS suite was installed in U.S.S. *Lassen* (DDG–82) in September 2001.

The fiscal year 2003 budget submission supports installation of NFCS on DDG–81–108, and selected CGs as part of cruiser conversion.

FUTURE NAVAL FIRES SYSTEMS

For the future, DD(X) will have the capacity to carry the variety and volume of offensive, precise firepower, which enable our Marine Corps and light mobile Army forces to complete their missions. These systems include the Tactical Tomahawk (Tactom) and the advanced gun system (AGS), firing the long-range attack projectile (LRLAP) to distances of 100 miles. DD(X) will also have the growth potential to include the ALAM. DD(X)'s ability to deploy a high volume of precision-guided munitions will provide joint force commanders with significantly improved ranges, accuracy, volume, firing rates, and response times compared to current-generation ships.

The 155mm gun, with fully automated ammunition handling system and a family of munitions/propelling charges, is specified to achieve ranges of up to 100 nautical miles. AGS will provide high rate-of-fire (approximately 12 rounds per minute) with a magazine capacity sufficient in size to meet USMC operational requirements. The AGS design will provide the basis for future naval gun systems.

MARITIME STRATEGIC DEFENSE—PROJECTING AREA DEFENSE

Building on the "backbone" of CEC to network fire control quality data throughout the battleforce and Standard missile enhancements, surface combatants will be able to conduct lethal engagements of large numbers of cruise missiles and aircraft over water around the sea base and, in selected cases, over land around joint forces ashore. Combining the track data from CEC with that of other services in a joint single integrated air picture will permit profound advances in tactical decision speed and accuracy.

To achieve synergy at a local level, combat systems are integrated at a shipboard level by systems designed to network sensors and systems within the lifelines. Programs that support this shipboard-level integration effort include the ships self-defense system (SSDS) and the Aegis Weapons system. Combined with the Standard missile program, data link systems and CEC, these cutting edge combat systems form the basis for area air defense that is expanding to the kinetic range of our missiles.

JOINT INTEGRATED AIR DEFENSE

The readiness of naval forces to perform joint integrated air defense (JIAD) missions remains a central focus for surface warfare. The objective of JIAD is to ensure assured access and projected defense as our military forces move essential combat and logistic forces through the littoral and into the sea and air ports of debarkation (SPODs and APODs). The Navy's forward presence, strategic and tactical mobility, and ability to conduct sustained sea-based combat operations form the basis for our significant contributions to JIAD and are essential to support U.S. national strategy.

Today's naval forces remain positioned to lead the JIAD effort with systems such as CEC, naval fires network (NFN), and area air defense commander (AADC). Our ability is also tied to the robust warfighting capability inherent in combat systems such as the Aegis weapons system and the ship self-defense system which continue to pace the emerging threat, in parallel with focused major modernization programs such as cruiser conversion, DDG–51 shipbuilding and force interoperability enhancement programs.

SHIP SELF-DEFENSE SYSTEM (SSDS)

The ship self-defense system (SSDS) is the combat system of the future for all *Nimitz* class aircraft carriers and LSD–41, LHD–1, and LPD–17 ship classes. SSDS is a physically distributed, open architecture computer network consisting of commercially available hardware. It includes operator consoles using the Navy's AN/UYQ–70 standard display family for human-machine interface, commercially available circuit cards and fiber optic cabling. SSDS, significantly expands the capability of both advanced combat direction system (ACDS) Block 0 and Block 1, performing the integration function for detection and engagement as well as performing automated detection and quick reaction functions, emphasizing performance in the lit-

toral environment. SSDS also serves as the integration point for the cooperative engagement capability (CEC) and the tactical data links (TADILS) on these ships.

Following operational requirements approval in 1995, SSDS development began for the LSD–41 class ships. Designated SSDS Mk 1, this system provided integration and automated operation of the combat system elements of these ships, including the SPS–49 radar, SLQ–32 electronic warfare system, close-in weapon system, and the rolling airframe missile Block 0. Following a successful OPEVAL in 1997, the system was approved for full rate production, and has subsequently been fielded on all 12 ships of the class, providing them with a robust anti-ship cruise missile defense capability.

After the successful deployment of SSDS Mk 1, the Navy began the development effort to expand the SSDS system to meet the evolving requirements of aircraft carriers and large deck amphibious ships. Designated SSDS Mk 2, this system will integrate additional weapons and sensors including the SPS–48E air search radar, the SPQ–9B ASCM radar, re-architectured NATO Sea Sparrow missile system (NSSM), and RAM Block 1. Additionally, SSDS Mk 2 provides the integration of the cooperative engagement capability and the tactical data links (TADILS) for these ships, providing a powerful ASCM capability as well as enhanced command and control capabilities to embarked Battle Force commanders.

The Navy has increased its investment in the SSDS program to ensure complete combat system integration, testing, and certification for U.S.S. *Ronald Reagan* (CVN–76) and U.S.S. *San Antonio* (LPD–17). These new construction ships will be the first built with the SSDS Mk 2 combat system, ensuring their ability to pace the increasingly lethal anti-ship cruise missile threat. Additionally, funds were added to equip land-based training sites on both coasts as well as to initiate a technology refresh process for this COTS-based system.

The fiscal year 2003 budget submission adds funds to accelerate fielding of this important combat system.

AEGIS SYSTEM

The Aegis weapons system brings immense warfighting capability to defeat the emerging threat and represents the backbone of the surface fleet. Over 50 percent of today's surface combatants are Aegis ships and by 2010, that figure will grow to 75 percent. Additionally, the profound role of Aegis lies in new advances in warfighting capability, including TBMD, CEC, and expanded land attack capabilities, which will all be introduced through the Aegis combat system.

AEGIS BASELINE CONSOLIDATION AND OPEN ARCHITECTURE

As the number of Aegis ships grows and new capabilities are introduced, the complexity of the combat system is increased, and we are faced with rising life-cycle costs. If not addressed, these costs have the potential of eroding warfighting readiness. Additionally, a threat to Aegis warfighting readiness stems from costs necessitated by replacement of COTS computing hardware. As industry has incorporated new hardware to meet the advanced computing requirements of our new Aegis combat systems, the myriad of computer boards and processors needed to drive the sophisticated Aegis combat system have become increasingly COTS based. Because this COTS hardware technology continuously changes as the marketplace rapidly introduces new computing technology, we must conduct COTS refresh of our shipboard systems every 2 to 5 years on average to avoid component obsolescence. Available data indicates that these COTS refreshes will come at a cost of $60 to $75 million per Aegis baseline. This cost is unavoidable due to the extensive research and development effort required to integrate COTS hardware with other existing Aegis combat system software and hardware interfaces.

The surface Navy is exploring new ways to mitigate these spiraling life-cycle costs. One way that offers the most potential is transitioning the Aegis combat system to an open computing system architecture. Open architecture would transition the existing Aegis centralized software and interfaces to a software design using a modern commercial language and software development techniques. Once in an open architecture configuration, changes to the Aegis combat system hardware and software, whether required due to component failure or age, or to support expansion of the system to perform new warfighting capabilities, could be done much more quickly and cheaply than with today's legacy architecture. In a real sense, open architecture is the key to maintaining the warfighting readiness of the Aegis combat systems over the life of these ships. Additionally, as we explore the transition of the existing Aegis baselines into an open architecture, distributed processing combat system, we intend to build in interoperability enhancements from the ground up,

as well as integrating new capabilities to fully enable the transformation to network-centric warfare operations of the future.

SPY–1D (V) RADAR SYSTEM

The AN/SPY–1 radar system is the primary air and surface radar for the Aegis combat system installed in the *Ticonderoga* (CG–47) and *Arleigh Burke* (DDG–51) class warships. It is a multi-function, phased-array radar capable of search, automatic detection, transition to track, tracking of air and surface targets and supporting missile engagements. The third variant of this radar, AN/SPY–1D(V), known as the littoral warfare radar, will improve the radar's capability against low altitude, reduced radar cross-section targets in heavy clutter environments and in the presence of intense electronic countermeasures. SPY–1D(V) will be fielded on DDG–91 and follow-on DDGs. It will be delivered to the Navy in October 2003. SPY–1D(V) will go through land based developmental and operational testing during the summer of 2003, followed by shipbuilder trials in the fall. When netted with other ships through the cooperative engagement capability system, this radar will improve the self-defense capabilities of all the ships in the network.

FUTURE AIR DEFENSE RADARS

The multi-function radar (MFR) and the volume search radar (VSR) are crucial stepping-stones to the future theater air and missile defense (TAMD) radar and will allow us to neck-down our family of in-service radars and illuminators. As an integrated radar suite, MFR/VSR will provide radar functionality for a wide range of ship classes at the best overall value to the Navy. The suite will generate significant space and weight savings and reduce shipboard radar signature.

MULTI-FUNCTION RADAR

Before the fleet can engage with weapons systems, we must first detect hostile aircraft and missiles. Among the detection systems under development in the DD(X) program is the multi-function radar/volume search radar (MFR/VSR). This radar suite provides a high power, solid state, wideband (X-Band for MFR and L-Band for VSR) active phased array radar system suite optimized for the littoral mission. It will replace up to nine in-service radars and illuminators, while providing autonomous horizon search, long-range volume search, and fire control tracking. MFR is also designed for surface search, periscope detection, and navigation. MFR will enable counter-fire support, electronic protection, and air traffic control/air intercept control functionality for the close approach control function required of air capable ships. As the primary ship defense AAW radar element of the host combat system, the MFR will conduct automatic detection, ID, tracking, and illumination of low altitude anti-ship cruise missiles in adverse (multi-path, lobing, and ducting) propagation conditions typically found in littoral environments. It will provide missile uplink and terminal homing illumination for ESSM and SM, as well as non-cooperative target recognition (NCTR) and kill assessment. MFR brings all this capability to the combat system in littoral clutter, heavy sea state, rain, and difficult radar propagation environments. It will do this with less manpower, lower life cycle costs, and a higher operational availability than current systems. MFR is designed to be scalable for possible future applications and, along with VSR, has application for a wide range of ship classes.

VOLUME SEARCH RADAR

The volume search radar (VSR) is an L-band active phased array radar using COTS based technology. It will provide long-range situational awareness with above horizon detection, and air control (marshalling) functionality. The VSR will replace the functionality of today's SPS–48E, SPS–49, and SPN–43 radars. Additionally, because it will be a non-rotating phased array radar, VSR will provide the required track revisit times to deal with fast, low/very low observable, high diving missile threats as well as reducing ships signature. VSR will provide cueing for MFR to conduct functions above the horizon. It too is designed to reduce ship manning and life cycle costs.

STANDARD MISSILE (SM)

The Standard missile (SM) is a primary defense-in-depth weapon in the ship self-defense family of capabilities, providing hard kill self-defense at two levels. At the area air defense level, SM–2 Block IV can be used at extended range to engage the ASCM carrying aircraft. Closer, but still at significant range, SM–2 Block III, IIIA, and IIIB variants of the missile have significant ASCM capability as well as im-

proved capability against surface targets. These missiles, historically limited in performance to the range of their own ship organic sensors, are now, in conjunction with cooperative engagement capability (CEC), able to engage targets at considerably greater ranges, markedly enhancing defense-in-depth and multiple engagement opportunities.

EXTENDED AREA AIR DEFENSE

The Navy has an ongoing effort to deploy next-generation extended-range AAW capability which adds a robust outer layer to fleet air defenses. The SM–2 Block IV is a kinematics improvement of the proven Standard missile family, incorporating a thrust-vector-controlled rocket booster, a more robust airframe, and guidance and control modifications for improved altitude/range/cross-range coverage against high-performance, low radar cross-section threats in an electronic countermeasures (ECM) environment.

The SM–2 Block IV has been delivered to the fleet and is presently deployed in small quantities to the Arabian Gulf and Mediterranean. Block IV production was terminated at the end of low rate initial production (LRIP) in favor of Block IVA development.

SM–2 Block IVA, cancelled in December 2001, was to have added endo-atmospheric theater ballistic missile defense (TBMD) and improved air defense capabilities to the proven Block IV baseline. In the Acquisition Decision Memorandum which cancelled the Navy Area TBMD program and the SM–2 Block IVA, the Under Secretary of Defense for Acquisition, Technology and Logistics recognized a continuing requirement to "address the need for extended-range anti-air warfare capability against cruise missiles and aircraft in light of this cancellation." While the details of the extended-range advanced AAW follow-on missile are still being defined, this missile could build on the proven airframe and propulsion stack developed for the SM–2 Block IV/IVA missiles.

STANDARD MISSILE—ASCM DEFENSE

A robust area air defense missile is a prerequisite for maintaining forward naval presence, operating in the littorals, and projecting and sustaining U.S. forces in distant anti-access or area-denial environments. The Standard missile-2 (SM–2) is the Navy's primary weapon for anti-ship missile defense and theater air warfare. Deployed SM–2 Block III, IIIA, and IIIB configurations are all-weather, ship-launched, medium-range surface-to-air missiles employed by all Aegis CG and DDG ships.

Each of the blocks is progressively more capable against more challenging threats and in more difficult electronic countermeasures (ECM) environments. SM–2 variants employ inertial mid-course guidance with command updates from the shipboard fire control system with an ECM-resistant monopulse receiver for semi-active radar terminal homing. Block IIIA features significantly enhanced performance and lethality against sea-skimming threats due to a new warhead and fuze design in addition to enhanced trajectory shaping. Block IIIB builds on the Block IIIA improvements by adding an infrared (IR) guidance mode capability to improve performance in a stressing electronic countermeasures environment. Blocks IIIA/IIIB will be the heart of the SM inventory for the next decade.

Block IIIB is the only variant presently in production for the U.S. Navy, although Block IIIA is still produced for foreign military sales. Block IIIBs are being produced as new all-up rounds, and as upgrades from older Block II and III missiles. The fiscal year 2003 budget submission for SM–2 Block IIIB begins an increase in SM production which promises to nearly double procurements through the FYDP compared with fiscal year 2002 projected levels.

The loss of the SM–2 Block IVA development poses a significant challenge in achieving an extended-range air defense capability for naval forces which will have to be addressed in the fiscal year 2004 budget submission.

SHIP SELF-DEFENSE

Ship self-defense is integral to a layered defense concept that evolves as naval assets move toward and establish presence and sea base in the littorals. Force defense starts with preemptive strikes by airborne assets such as Tomahawk cruise missiles and strike aircraft to neutralize the threat. As ships move closer, defense migrates to defensive aircraft and area defense assets such as Aegis cruisers and destroyers. Finally, as naval assets move in closer to the threat, protection is based on ship self-defense systems. Ship self-defense is a fleet wide requirement and all ship types, including aircraft carriers, surface combatants and amphibious ships, are included in our strategy. Ship self-defense for anti-submarine warfare and mine warfare will be discussed in the Undersea Warfare section below so this discussion will focus on

systems that support self-defense and close-in defense of naval assets against aircraft, the anti-ship cruise missile (ASCM) threat and small fast surface combatants.

ANTI-SHIP CRUISE MISSILE (ASCM) DEFENSE

Our ASCM defense strategy involves enhancing the capabilities of our existing ship self-defense weapons and introducing new ship self-defense systems while simultaneously integrating these systems within the ship and among ships throughout the force to achieve exponential levels of improvement in our capabilities. All three levels of integration—stand alone system, ship-level integration and force-level integration—are important and are being advanced in this year's budget submission. Current and near-term programs will be discussed first at all three levels of integration before moving on to a general discussion of future programs.

SHIP SELF-DEFENSE WEAPONS SYSTEMS—HARD KILL

Hard kill systems are designed to detect, engage, and destroy ASCMs or small surface craft. The Navy significantly increased funding for hard kill ship self-defense weapons in the fiscal year 2003 budget request. A common theme in our effort to increase our hard kill capabilities was to ramp up funding of missiles to achieve economic order quantity as soon as feasible. This allows us to buy missiles more efficiently, meaningfully address our ship fill requirements and optimize the use of available funds. Specific examples of this investment are explained below.

ROLLING AIRFRAME MISSILE (RAM)

In terms of capability and performance, the RAM is our premier close-in hard kill system. RAM is deployed aboard 39 U.S. ships, including LHAs, LHDs, LSDs, DDs, and CV/CVNs and is planned to be installed aboard LPD–17 class ships. The RAM Block 0 missile is a highly capable missile with low altitude capability and dual RF/IR guidance that does not require fire control illuminators. RAM Block I adds an IR all-the-way capability and a helo/air/surface (HAS) mode which should begin to enter the fleet next year. This HAS mode will allow RAM Block I to engage single engine propeller aircraft, helicopters, and small coastal patrol surface craft, while preserving point defense ASCM mission priorities. This missile has exceeded expectations since its successful operational evaluation (OPEVAL) aboard the self-defense test ship with a record of 181 successes out of 192 firings, including 23 of 25 firings of the most advanced Block I missile. RAM Block 0 ships will complete upgrade to Block I over the FYDP. The RAM development program is an example of the benefit of international cooperation. It was developed in cost-effective partnership with Germany with the U.S. paying only 50 percent of the development cost.

In the fiscal year 2003 budget submission, the procurement profile for RAM includes the purchase of both all-up round RAM Block I missiles and RAM alteration kits (converting existing Block 0 missiles to Block 1) that will result in a significant increase in the RAM inventory over the FYDP.

EVOLVED SEA SPARROW MISSILE (ESSM)

NATO Sea Sparrow, the forerunner of the ESSM, still provides ample self-defense against the significant preponderance of the near-term threat and is one of the world's most widely deployed ship self-defense systems. It is currently deployed on 50 U.S. ships and 110 other ships worldwide. It has an all-environment engagement capability against non-emitting, non-radiating, non-cooperative targets, including low-to-high speed surface vessels, rotary and fixed wing aircraft, and low radar cross-section anti-ship cruise missiles in a regime from sea level to an altitude of 25,000 feet.

The ESSM has its roots in the NATO Sea Sparrow and is another example of the Navy's ability to take advantage of international cooperation to defray the cost of improving and upgrading hard kill self-defense systems. Ten Sea Sparrow Consortium nations have invested in the ESSM with the U.S. paying less than half the development costs. A new rocket motor, tail control, and warhead have improved the ESSM's speed, range, and lethality. ESSM is delivered in a quad-pack canister container of four missiles, with each quad-pack designed to be inserted into a single Mk 41 vertical launcher system (VLS) cell. Follow-on launcher options are being examined for application on non-VLS equipped ships (CVN/LHDs). The program has enjoyed a most successful year of development and testing, highlighted by highly successful land-based, live-fire testing completed last December at White Sands Missile Range. Low rate initial production approval was granted in early March.

The fiscal year 2003 budget submission improves the fielding profile for ESSM, supporting installation on 17 ships across the FYDP, including CVN–77, cruiser con-

versions, and DDG backfit (DDG–79–84). fiscal year 2003 ESSM missile procurement was increased by nearly 50 percent over fiscal year 2002 projections.

CLOSE-IN WEAPONS SYSTEM (CIWS) UPGRADE

Another hard kill system that has matured to meet both the evolving threat and the changing tactical environment of the littorals is the CIWS. After nearly 20 years of CIWS service, the Navy continues to upgrade the CIWS to expand capability and improve maintainability and reliability. The Block 1A variant of CIWS, introduced to the fleet in 1996, possesses new high order language computer hardware and software to counter maneuvering targets, providing increased firing rates, better receiver sensitivity, electromagnetic interference (EMI) hardening, and other significant improvements. In the fiscal year 2002 budget and the fiscal year 2003 budget submission, the Navy has accelerated upgrade of the CIWS system to the Block 1B variant. CIWS Block 1B continues the evolutionary upgrade of this system with the incorporation of a thermal imager, an automatic acquisition video tracker, and a stabilization system for the tracker to provide threat detection both day and night. The thermal imager improves the accuracy of angle tracking information, and the fusing of radio frequency (RF) and electro-optical (EO) sensor systems provides a marked improvement in anti-air warfare (AAW) capability, including increasing the number of hits per engagement, extending initial hit range, and countering the effects of multi-path propagation. Block 1B is outfitted with an optimized gun barrel (OGB) and is able to fire enhanced lethality cartridges. Most notably, CIWS–1B brings a day and night surface mode capability (PSuM) to this proven air defense weapons system, allowing highly responsive engagement of threats such as small boats, jet skis, and floating mines out to a range of 4,000 yards.

The fiscal year 2003 budget submission initiates a CIWS Block 1B procurement and conversion program geared to expeditiously deliver significantly enhanced ship self-defense and terrorism/force protection to our amphibious ships, surface combatants and carrier force. Our fiscal year 2002 and fiscal year 2003 funding plan is postured to "jump start" conversion of CIWS gun mounts to Block 1B and our objective is to provide Block 1B capability across the surface force within the FYDP.

SHIP SELF-DEFENSE WEAPONS SYSTEMS—SOFT KILL

Layered force defense is made more robust by the combination of soft-kill systems with the hard kill systems. These systems defeat the ASCM electronic systems through jamming or deception. In the fiscal year 2003 budget submission the Navy significantly accelerated the fielding of the highly effective Nulka decoy system and funded moderate upgrades of the AN/SLQ–32 electronic warfare system while continuing development of the next-generation advanced integrated electronic warfare system (AIEWS).

NULKA OFF-BOARD DECOY/ADVANCED INTEGRATED ELECTRONIC WARFARE SYSTEM

Another success story of international cooperation to speed development and reduce unit cost is the Nulka active, off-board, ship-launched decoy system. Developed in cooperation with Australia (Australia paid half the development cost) to counter current and future radar-guided, anti-ship cruise missiles, Nulka employs a broadband radio frequency repeater mounted atop a hovering rocket platform. Nulka radiates a large, ship-like radar cross-section while flying a trajectory that seduces and decoys incoming ASCMs from their intended targets. Nulka is planned for installation in CG–52 through 73, DD(X), DDG–51, LPD–17, and LSD–41 class ships. During recent testing Nulka provided impressive protection against multiple missile attacks.

The fiscal year 2003 budget submission adds funding to upgrade 20 FFGs with Nulka and continues funding for the installation on new construction ships and procurement for an ongoing backfit program throughout the fleet.

AN/SLQ–32 ELECTRONIC WARFARE SYSTEM UPGRADES

The soft kill "workhorse" of the fleet is the AN/SLQ–32 electronic warfare system. The AN/SLQ–32(V) electronic countermeasures set is a family of modular radar warning receivers and jamming systems that support the three anti-ship missile defense (ASMD) elements of detect, control, and engage. Ships use AN/SLQ–32(V) to detect and identify threat radars and, in later variants, to engage or jam these radars or deploy decoys against them. AN/SLQ–32(V) program started in 1973 and resulted in five variants of AN/SLQ–32(V). Variants (V)1 and (V)2 are computer controlled, radar warning receiver systems that detect, sort, classify, identify, and indicate the presence of enemy and friendly radars. Variants (V)3, (V)4, (V)5 include all

of the receive capability of variants V(1) and (V)2 and add integrated radar jamming equipment. All variants of the AN/SLQ–32(V) interface directly to the Mk 36 or Mk 53 decoy launchers. Through this interface, the AN/SLQ–32(V) controls and coordinates the launching of off-board countermeasure decoys. Off-board countermeasures include radio frequency (RF) chaff, Nulka (rocket-propelled, active jamming decoy), and infrared (IR) decoys.

This year we have added funding to upgrade the AN/SLQ–32 to address shortfalls in the threat emitter library. Additionally, we are assessing new technologies developed in the advanced integrated electronic warfare system for potential insertion into the AN/SLQ–32 system.

ADVANCED INTEGRATED ELECTRONIC WARFARE SYSTEM (AIEWS)

As with hard kill systems, soft kill systems also must pace the threat, which is becoming smaller, faster, lower, and more maneuverable. Next generation soft kill technologies are being explored in the AIEWS program. These technologies include an advanced display, improved emitter processing, enhanced combat system integration, a new receiver capability, and improved emitter identification. The AIEWS program has provided "leading edge" technology development that is providing an exceptional array of technologies with significant promise to improve surface electronic warfare capabilities in the legacy and future systems.

REDUCED RADAR SIGNATURE

Reducing the radar signature of our combatants buys battle space by complicating threat targeting and acquisition. The DDG–51 class hull and superstructure were designed to significantly reduce radar signature to enhance survivability in an ASCM environment. Building on this concept which lowered the DDG radar cross-section to less than that of a FFG, the DD(X) is being designed to further reduce radar and IR signatures. Through integrated topside design (ITD) and new hull forms making use of the latest technologies including composite materials and aperture control, DD(X) is expected to achieve significant multi-spectral signature reduction that will greatly enhance self-defense and survivability in the littoral. Such signature reduction provides dramatic advantages on the battlefield but, more over, makes future self-defense systems markedly more affordable and practical to build.

SHIP SELF-DEFENSE SENSOR SYSTEMS

Complementary to our hard kill and soft kill weapons programs, the Navy is developing and upgrading selected sensor systems to enhance ships self-defense. These systems include improvements to the AN/SPQ–9B search and gunfire control radar, the SPY–1D radar system, the Mk 46 optical sight and the thermal imaging sensor system.

AN/SPQ–9B GUN CONTROL RADAR

The AN/SPQ–9B is state-of-the-art detection system being developed to counter the emerging air and missile threats. AN/SPQ–9B detects and tracks low-flying, high speed, small radar cross-section anti-ship cruise missiles in heavy littoral clutter. It detects and tracks small, high speed maneuvering surface craft in sea clutter as well. The result is a significant extension of a ship's battle space to conduct self-defense engagements. The first unit was installed aboard U.S.S. *Oldendorf* (DD–972) and has met all requirements with impressive results. Its configuration is based on the original Naval Research Laboratory design with a parabolic reflector antenna that is larger and heavier than the antenna of the AN/SPQ–9A. In a mid-deployment report, *Oldendorf* stated AN/SPQ–9B was an excellent development in radar systems and the improvement of the 9B over the 9A was "tremendous" noting "the AN/SPQ–9B has become *Oldendorf's* premier radar." To provide installation flexibility, we have completed development of a rotating slotted array lightweight antenna designed to provide comparable performance to the antenna deployed on *Oldendorf* but with significantly lower topside weight.

This year we have added funding to procure additional AN/SPQ–9B systems to backfit fleet units and will install AN/SPQ–9B on all cruisers as part of the cruiser conversion program.

MK 46 OPTICAL SIGHT

Mk 46 optical sight system is a central component of the Mk 34 gun weapon system, providing electro optical/infrared detection and tracking capability in support of gun engagements. Ancillary uses include night/low visibility surveillance, naviga-

tion/ship handling, search and rescue, and in-port security. Over 40 Mk 46 optical sights are fielded in the DDG–51 class.

In the fiscal year 2003 budget submission, we commenced the fielding of Mk 46 upgrades, including an eyesafe laser range finder, 3–5 micron FLIR, and azimuth motor upgrade, that will significantly enhance system reliability and performance. These warfighting improvements will provide Aegis DDGs increased ship self-defense and force protection capabilities.

THERMAL IMAGING SENSOR SYSTEM

The thermal imaging sensor system (TISS) also provides ships with a 24-hour visual surveillance capability to be used for situation awareness, target detection and identification, and critical capabilities for challenging littoral environments. Efforts are underway for integration of this system into current and future combat systems for both fire control and target identification. TISS is currently deployed in limited numbers in the fleet, but the response from crews of ships with this system has been enthusiastic. TISS is a beneficial anti-terrorism/force protection asset. In the Arabian Gulf, TISS is the system of choice for monitoring and identification of shipping in our maritime interdiction operations (MIO). TISS's detection and surveillance capabilities are also of great benefit to units conducting counter-drug operations in this hemisphere. As funds permit, we are continuing a systematic program directed to outfit every forward-deployed ship in the fleet with a low light surveillance (EO/IR) system like TISS.

The fiscal year 2003 budget submission maintains support for this significant sensor capability at fiscal year 2002 projected levels.

FUTURE SHIP SELF-DEFENSE SYSTEMS

To pace the threat, continued development of future ship self-defense systems is incorporated in the spiral design of DD(X) which will be developed as one of a family of ships that will also include two other future surface combatants, the advanced cruiser CG(X), and the LCS. The DD(X) program in fiscal year 2003 is fully funded with emphasis on risk mitigation and timely deployment. The combination of the stealth characteristics gained in signature reduction technology and state-of-the-art radar technology will significantly enhance the self-defense capabilities of the DD(X) and, through netting, the other ships in the force. The LCS, to be built from the start as a networked and distributed platform with open, modular architecture, will rely on networks, speed, stealth and maneuverability to enhance its own self-defense, while, through those same capabilities and its organic sensors and weapons, contributing to the self-defense of other ships of the force. This is network-centric warfare in a most tangible and meaningful way.

MULTI-FUNCTION RADAR/VOLUME SEARCH RADAR

As discussed above, multi-function radar (MFR) and volume search radar (VSR) associated with the DD(X) program are optimized for the littoral environment and will provide autonomous horizon search, long-range volume search, and fire control track. MFRs have the ability to provide surface search, periscope detection and navigation and enable counter-fire support and electronic protection in ship self-defense. MFR will automatically detect, ID, track and illuminate low altitude anti-ship cruise missiles in littoral environments. It will support ESSM and SM and provide non-cooperative target recognition (NCTR) and kill assessment. The VSR will provide long-range situational awareness and the required track revisit times to deal with fast, low/very low observable, high diving missile threats to enhance ship self-defense.

INFRARED SEARCH AND TRACK (IRST) SYSTEM

The Navy is investing in electro-optical and infrared (EO/IR) detection and tracking systems to provide a key capability to complement traditional radar and RF systems. The integration of multiple, layered force defense systems allows a ship to defeat a wide variety of threat missiles across the spectrum of radar cross-sections, IR signatures, and seeker types. Each system is affected differently by weather, environment, or ducting. A performance null experienced by one type of system due to its environment can be filled by another system's capability.

The IRST system is a sea-skimming anti-ship cruise missile detection system that adds significant improvements to the shipboard sensor suite. It improves ship survivability by providing 360-degree passive horizon surveillance, automatically detecting and tracking subsonic and supersonic threats.

The developmental system will provide ships with a 24-hour visual surveillance capability to be used for situational awareness and target detection and identification. Additionally, tests have been conducted to integrate this system into current and future combat systems for both fire control and target identification. The first developmental model was successfully tested aboard the self defense test ship in 1997 and 1998, and on U.S.S. *O'Bannon* (DD–987) in 1999.

In the fiscal year 2003 budget submission we have added funding to complete a second engineering development model of the IRST system.

SHIP SELF-DEFENSE—PATROL BOATS AND SMALL, FAST SURFACE CRAFT

Small, fast surface combatants are a serious threat in the littoral environment. The guided missile patrol boat (PTG) is a vessel generally between 50–70 meters and capable of carrying 4–8 ASCMs. The surface Navy possesses adequate capability to counter both the PTG and their associated missiles. Significantly smaller boats, 5–27 meters and armed generally with shoulder-fired and/or smaller weapons, are an emerging threat. In numbers, these boats could present a challenge to single ships operating in close-in littoral waters. Situational awareness, air assets (organic or shore based), and netted multi-ship formations mitigate this challenge. Our strategy to counter this threat parallels our efforts to pace the ASCM threat, including the layered defense concept of operation, and hinges largely on leveraging the same weapons systems and integration advantages that were discussed above for the ASCM threat. As previously mentioned, several weapons developed for ASCM self-defense also have surface capability, most notably Standard missile, ESSM, and RAM against the PTG and RAM Block 1 (HAS) and CIWS 1B against the smaller boats. Additionally, the new LCS will be designed specifically to counter this threat, leveraging networks, speed and agility.

Immediate measures to respond to the small surface craft threat include, providing additional 23mm chain guns, installing TISS systems on deployers and introducing organic armed helicopters to surface combatants. Each 23mm chain gun-equipped ship will be provided with two gun mounts to ensure 360-degree coverage for this anti-surface weapon. The TISS system, described above, is being fielded on our ships deploying into high threat areas such as the Arabian Gulf. We have also already deployed light airborne multi-purpose system (LAMPS) SH–60 helicopters with Hellfire missile capability into the fleet. In the near-term, we are accelerating the conversion of CIWS mounts to the Block 1B variant and providing the HAS capability to the RAM capable ships.

Future enhancements that will continue to improve our anti-small boat capability include introduction of the AN/SPQ–9B, the Multi-Function Radar (MFR) and the LAMPS MH–60R helicopter. The AN/SPQ–9B gunfire control radar, described above, is specifically designed to provide better detection of small surface craft and to allow the 5″/54 gun system to engage them. The MFR, designed to function in the littoral, will provide the automatic tracking, auto-identification and periscope-level sensitivity necessary to detect, track and target small, fast surface craft. Though not possessing the requisite algorithms for periscope detection, in certain environmental conditions, AN/SPQ–9B has demonstrated promising capability during at sea testing. Finally, the MH–60R helicopter, employed from in-service cruisers, destroyers and frigates or future platforms like LCS, and armed with Hellfire missiles, offers considerable capability against small surface craft.

The LCS is being developed to conduct this type of difficult, focused littoral mission as a complement to our current and future multi-mission surface combatants in the balanced total force. As part of a netted and distributed force, the LCS will use its speed and agility to enhance its own self-defense and contribute to the self-defense of other platforms in the network. We are leveraging work in other programs to start work on LCS related technologies now and expect to formally fund the program next year.

UNDERSEA WARFARE

Undersea warfare (USW), which includes antisubmarine warfare (ASW) and mine warfare (MIW), is and will remain a Navy core competency and is critical to assured access. The littoral environment provides a challenge for ASW. The proximity to coastal waterways, harbors, and shipping lanes increases ambient noise and significantly complicates the already difficult challenge of undersea acoustic detections. This continued acoustic space complicates the problem of sorting legitimate target echoes from random background echoes. Littoral sonar performance and prediction are highly problematic. Now more than ever, ASW requires a team effort as the harsh littoral requires exploitation of each detection opportunity.

In our shipboard sonar program, we are pursuing an aggressive two-pronged strategy. First, we intend on taking full advantage of the enormous advancements in computing power and networking. We have targeted these technologies for the AN/SQQ–89(V)15 and the AN/SQQ–89A(V)15 with the multi-function towed array (MFTA) undersea warfare suite. Through analysis we have learned that our best payoff is gained by employing active sonar in conjunction with active acoustic processing techniques and optimizing our passive sonar arrays to operate in the noisy and complex waters of the littoral. Second, we are investing in systems that afford surface combatants mine hunting capability. History has shown time and again that mines are the most effective asymmetric threat in the littoral environment. Their vast diversity and increased proliferation, coupled with abundance of mine-like clutter, present in the littorals demand that we equip our Fleet with the ability to find and avoid this threat. The concept in which we are engaged is called remote mine hunting and, when executed successfully, will allow us to sail in seas heretofore closed to us, simply because mines might be present. Add to the ASW sensors described above, improvements in ship torpedo defensive systems, the improved MH–60R helicopter program, and the new Mk 54 lightweight hybrid torpedo, and it is clear this budget submission is focused to enhance surface combatant ASW effectiveness.

AN/SQQ–89 PROGRAM

In the near-term, our ASW focus centers on upgrading the existing AN/SQQ–89 sonar suites to meet future undersea challenges. The upgrade, designed to counter the quiet diesel-electric submarine threat in the littoral, enhances existing capabilities for shallow-water prosecution and adds new, robust capabilities such as torpedo recognition and alertment, and cross-layer active detection using broadband waveforms. The system will capitalize on open system network architecture, and commercial off-the-shelf (COTS) functional enhancements to reduce procurement and development costs, and also simplify future capability upgrades. The AN/SQQ–89 undersea warfare control system provides a fusion point for sonar data, bottom topography, and non-acoustic sensors. With the AN/SQQ–89, surface warriors will have superior data fusion and processing, combined with more effective sensor coverage.

Critical to future ASW is the multi-function towed array (MFTA), developed in concert with the submarine and IUSS communities, it will provide warfighters with a below-layer active/passive detection sensor and a torpedo detection receiver optimized for shallow water environments. Unlike previous towed arrays that were restricted to deeper water, the MFTA is designed to serve as a receiver for the hull mounted AN/SQS–53 sonar, extending the reach of the hull sonar away from own ships noise. Additionally, surface combatants will receive the MH–60R with its advanced ASW suite, including the AQS–22 airborne low frequency sonar (ALFS). The SQQ–89(V)15 working in a coordinated manner with the MH–60R carrying the new Mk 54 digital torpedo will give surface warriors a powerful ASW capability in any ASW environment.

The fiscal year 2003 budget submission represents a significant change of strategy for SQQ–89A(V)15 fielding. Under this new strategy, these systems will now be installed in *Ticonderoga*-class cruisers as part of the cruiser conversion program in addition to the installation plans for DDGs. OPN funding levels were revised downward as part of this budget to reflect the shift of funds to the CG Conversion SCN account.

MK 54 TORPEDO

As the shallow waters of the littoral environment have become better understood, it is clear that ASW acoustic torpedoes require more robust detection and signal processing capabilities to further enhance performance in littoral environments. With defense-wide fiscal constraints prevailing, a new "bottom up" development program has not been feasible. The determination was made that state-of-the-art COTS processors combined with technologies and performance features already incorporated into the Mk 50 lightweight torpedo and Mk 48 (ADCAP) heavyweight torpedo, if effectively adapted to inventory units of the Mk 46, provide the most cost-effective alternative to counter today's threat. In 1995, the Mk 54 lightweight hybrid torpedo program was initiated to provide a cost-effective shallow water performance upgrade to the lightweight torpedo inventory of Mk 46 and Mk 50 torpedoes.

For the Mk 54 the incorporation of non-developmental item technologies from existing weapons and commercial industry has resulted in a significantly improved shallow water performance while reducing total ownership cost. Extensive use of COTS and open systems architecture enables the Mk 54 to be readily upgraded via technology insertion and software upgrades to counter future threats. CG–47, FFG–

7, and DDG–51 class combatants, the SH–60B/F, MH–60R, and the P–3 aircraft will all employ the Mk 54.

The Mk 54 is planned to IOC in fiscal year 2003, with full rate production commencing in that year. We significantly accelerated the procurement of the Mk 54 in the fiscal year 2003 budget submission to achieve significant savings through procurement at economic order quantities (EOQ), and to obtain a significant improvement in capability within the FYDP.

AN/SLQ–25A

The advances in computing technology have allowed an increased sophistication and enhancement to our underwater defensive systems, specifically the AN/SLQ–25A. Central to our future undersea defensive systems will be a focus on the existing AN/SLQ–25A, which will be enhanced with state-of-the-art acoustic sensors and automated processing.

The AN/SLQ–25A system is currently a soft-kill countermeasure system that acts as a decoy to confuse incoming homing torpedoes. It is the most widely used torpedo countermeasure system fielded on our ships. The AN/SLQ–25A is a towed system that operates at all times when the ship is at risk of torpedo attack, and unlike some of the more sophisticated countermeasure systems, the AN/SLQ–25A in its current state does not rely on cueing from an anti-submarine warfare (ASW) system.

TORPEDO RECOGNITION AND ALERTMENT

If a ship is to react to a torpedo fired against it, there must be a way for the ship to detect the torpedo. Our surface combatants, using input from both the hull sonar and towed arrays, employ a processor and display system to gain alertment and recognition of torpedo acoustic emanations. The alertment and recognition system is used in conjunction with ship maneuvers to evade the torpedo and deployable countermeasures to effect a soft-kill of the incoming torpedo. The AN/SQQ–89 anti-submarine warfare combat system torpedo recognition and alertment functional segment (TRAFS) will detect and localize torpedoes at tactically significant ranges when torpedo acoustic noise is received by the towed array or the hull sonar. In the development of this important system, recent advances in acoustic sensors and computing have provided promise that the AN/SLQ–25 can be adapted to provide a significant improvement to torpedo alertment.

ANTI-TORPEDO TORPEDO (ATT)

The ATT is the only near-term, hard kill countermeasure that promises to be effective against all threat torpedoes. The ATT will soon complete a fiscal year 2001 advanced technology demonstration (ATD). The Navy Staff has worked very closely with the Office of Naval Research on further development of this promising weapon system, as well as the potential to integrate this capability into shipboard systems for torpedo defense. The torpedo detection programs previously discussed lay the foundation for introduction of an ATT capability as it materializes.

REMOTE MINEHUNTING SYSTEM

While it is preferable to avoid mined areas (using our knowledge superiority), military objectives may require operations in close proximity to mined waters. The Navy will continue to aggressively research and prepare mine countermeasure (MCM) systems to ensure effective operational capability in littoral waters in support of land campaigns. Countermeasure technology must keep pace with the increased sophistication in mine fusing and stealth technology.

For surface combatants, a new addition to the AN/SQQ–89 USW suite will be the AN/WLD–1, remote minehunting system (RMS). The first RMS deployment is presently planned for DDG–91 in fiscal year 2005 and represents the first generation of organic mine countermeasures (OMCM) systems for surface combatants. RMS is a semi-submersible vehicle that tows a mine hunting sensor suite to detect, classify, locate, and identify mines in the water column and on the sea bottom. RMS can operate autonomously and maintain a radio frequency link to the ship to allow sufficient forward deployment from the host ship, thereby reducing risk and minimizing interference with other ship missions. Through the AN/SQQ–89 and global command and control system-maritime (GCCS–M), RMS will communicate mine location information to the rest of the fleet, supporting the integration of organic and dedicated mine warfare forces. RMS represents leading edge technology in organic mine hunting which must be leveraged into our future ships to provide optimum operational capability and flexibility.

MH–60R LIGHT AIRBORNE MULTI-PURPOSE SYSTEM (LAMPS)

An important piece of undersea warfare and force protection is the LAMPS SH–60B and its next generation, the MH–60R helicopter. These helicopters play a significant role in our "assured access" strategy. The MH–60R will provide improved capability in littoral—specifically in improving to situational awareness and providing defense against an increasing threat from small surface combatants and quiet diesel submarines. The MH–60R will bring an inverse synthetic aperture radar (ISAR) capability, the advanced ALQ–210 EW suite, and an integrated AQS–44 FLIR capability to our surface force. The MH–60R and its AQS–22 dipping sonar, along with an improved COTS-based acoustic processor will enable the execution of multi-static ASW, contributing to our ability to detect threats in harsh littoral environments. In addition to these significant mission avionics capability upgrades, the decision was made last year to shift to a new manufacture program geared to directly improve the readiness and operational availability of these helicopters. This program provides a critical warfighting component for our surface combatants.

CONCLUSION

Our surface Navy remains a pre-eminent maritime fighting force in an ever changing and dangerous world that continues to be characterized by instability, uncertainty and ever increasing asymmetric threats. Today's Navy possesses the mix of capabilities required to carry out our Nation's maritime strategy. But we must do more to pace tomorrow's inevitable challenges. The surface Navy we are building for the 21st century will be characterized by speed, agility, strategic reach, and an enhanced "toolbox" of capabilities all designed to assure access, project power and project defense. The "family of ships" in our 21st century surface Navy will be truly transformational and will dominate the battle space, undersea, on the surface and in the air. This "family of ships" will be a force designed from the keel up to operate as a distributed, netted force. Today, we are on our way to realizing the full benefits of network-centric warfare with capabilities such as CEC, AADC and NFN operating at sea, and we will build upon our successes to move towards the more enhanced and transformational networked architecture of FORCEnet.

In a challenging world, our surface Navy remains a critical force in defending U.S. interests abroad and our citizens at home.

On behalf of surface warriors and our Navy, I want to offer my sincere thanks for your continued support and thank you for this opportunity to speak before you on the state of surface warfare. We have met and are meeting the challenges of the Cold War, the conflicts of the 1990s and now the first war of the 21st century, the War on Terrorism. In doing so, the message is clear: be prepared for the unexpected. We continue to strive earnestly to do just that.

Senator KENNEDY. Admiral Sullivan.

STATEMENT OF REAR ADM. PAUL F. SULLIVAN, USN, DIRECTOR, SUBMARINE WARFARE DIVISION, OFFICE OF THE DEPUTY CHIEF OF NAVAL OPERATIONS, DEPARTMENT OF THE NAVY

Admiral SULLIVAN. Mr. Chairman and distinguished members of the Seapower Subcommittee, thank you for this opportunity to discuss submarine shipbuilding acquisition programs. Thank you, too, for your continued strong support of our sailors, their families, and our submarine force.

To understand the important contributions our force is making in defense of our freedoms, we need to look no further than the role that submarines played in the early phases of Operation Enduring Freedom. Following the attacks of September 11, the U.S.S. *Providence* and her sister ship, U.S.S. *Key West*, were among the first on the scene.

Providence is particularly an excellent example of the success of recent congressionally-funded submarine programs and initiatives. *Providence* was at the end of a 6-month deployment and on her way home when the attacks occurred. Upon receiving word of the

attacks, the skipper and his crew were directed to return to station off the coast of Afghanistan at best speed.

The very next day, the well-trained crew of *Providence* was on station preparing the battle space for upcoming naval combat operations and stood ready to launch Tomahawk cruise missiles. *Providence* positioned close in, providing important cuing to the *Enterprise* and *Vinson* battle groups, recorded and forwarded intelligence, surveillance, and reconnaissance information, and rapidly executed time-critical strike missions when called upon.

Recent modernization initiatives, including the submarine high data rate antenna, the ARCI sonar system, the advanced TB–29 towed array, and IT–21 local area network, were all critical to her success. These initiatives, combined with the strong long-term maintenance plan, provided *Providence* the endurance to stay on station well beyond the normal 6-month deployment and launch nearly one-third of the initial strike weapons while conducting surveillance activities ashore and at sea.

With the increased demand signal from the warfighting combatant commanders since September 11 and a present force structure of only 54 attack submarines, how do we ensure similar success in the future? The key is to continue to deploy similar capabilities on all our submarines—SSNs, including future *Virginia* class submarines, SSBNs, and future SSGNs.

Therefore, it is imperative that as a top priority we maintain a core modernization plan for our ships that utilizes COTS equipment and open architecture systems whenever possible to allow the ability to rapidly update. With this as a priority, we will be best positioned to handle the biggest challenges today involving access to littoral waters when threatened by mines and quiet diesel submarines.

As a result of the post-September 11 successes and recognizing the need to transform for the future, our PB03 budget focuses on investing in upgrades such as sonar, ARCI and its annual programs, command, control, communications, computer, intelligence systems, including our common submarine radio room, improved antennas, as I mentioned the high data rate antenna, and the new OE–538 antenna, combat control systems, which are envisioned to be more than just fire control systems, but provide tactical control and information management systems, periscopes and imaging——

Senator KENNEDY. Admiral, I am going to have to just recess for just a moment. As you can see, there is a vote over in the Senate. I will go over and vote, and then we will go ahead with the remainder of your testimony here, Admiral.

The committee will be in recess. [Recess from 3:50 p.m. to 4:09 p.m.]

We will come to order. Admiral Sullivan, I recognize you.

Admiral SULLIVAN. Yes, sir. I was discussing the investments we are doing to upgrade our ships' capabilities. I left off with we are investing considerably in updating our periscopes and ability to do imaging through some automatic low-intercept radars, some infrared imaging.

We are also investing in signals intelligence to allow us to conform to the threat.

Away from submarines, we are also integrating or updating our integrated undersea surveillance systems, both the fixed systems and the advanced deployable systems.

With all this, we are continuing to emphasize our maintenance, force protection, and our payloads, particularly the tactical Tomahawk and undersea unmanned vehicles.

On the strategic side of our business, the recent Nuclear Posture Review clearly reinforced the importance of the survivable sea-based deterrence provided by the Trident SSBNs. Recently the U.S.S. *Alaska* was backfitted to accommodate the Trident II D5 missile and completed a highly successful demonstration and shakedown operational missile test.

We also are investing in D5 missile life extension programs to ensure adequate missile inventory for the life of our Trident submarine programs.

Mr. Chairman, thank you again for the privilege of testifying today. The capabilities we are building into our ships and undersea systems are critical to meeting the threats of today and those of the future. Innovative modernization of our current SSNs and SSBNs, continued development of the superb *Virginia* class, transformation of the four *Ohio* class fleet ballistic missile submarines to SSGNs, and a robust yet focused research and development investment will ensure the U.S. remains the preeminent submarine force.

With your continued support, we will be able to modernize and maintain our platforms as the most advanced technologically sophisticated submarine force in the world.

Thank you, sir.

[The prepared statement of Rear Admiral Sullivan follows:]

PREPARED STATEMENT BY REAR ADM. PAUL F. SULLIVAN, USN

Mr. Chairman and distinguished members of the Seapower Subcommittee, thank you for the opportunity to discuss submarine force non-shipbuilding acquisition programs. Thank you too for your continued strong support of our sailors, their families, and our submarine force.

As the Navy's Director of Submarine Warfare, it is my principal job to determine the capabilities required of our undersea forces across a wide spectrum from peace through deterrence to conflict. Inherent in this job is the responsibility to ensure the programs and initiatives we are pursuing are an efficient and effective use of limited defense resources. My remarks today will include a description of the enduring characteristics of nuclear powered submarines, the strategic concepts that form the submarine force's vision for the future and the capabilities we are pursuing for our systems.

The focus of our acquisition programs in Presidential budget 2003 is to improve the joint warfighting effectiveness of our submarines and undersea systems to meet current and future Commander in Chief (CINC) and National requirements. In addition to shipboard programs, I will also discuss submarine rescue systems, fixed acoustic arrays and other off-hull undersea warfare sensors and systems for which I am responsible.

To understand the importance of today's submarine force, we need look no further than the contributions of our submarines during the early phases of Operation Enduring Freedom (OEF). Following the attacks of September 11, U.S.S. *Providence* (SSN–719) and her sister ship U.S.S. *Key West* (SSN–722) were among the first on the scene. Recent submarine force initiatives including the high data rate (HDR) antenna, acoustic rapid COTS insertion (ARCI) sonar system, advanced TB–29 towed array and IT–21 local area network were critical to the successes of these ships in preparing the battle space, providing anti-diesel cueing to the U.S.S. *Enterprise* and U.S.S. *Carl Vinson* battle groups, recording and forwarding intelligence, surveillance, and reconnaissance (ISR) information and rapidly executing time-critical strike missions. I will include a discussion of each of these acquisition programs and initiatives later.

ENDURING SUBMARINE CHARACTERISTICS

The ability of our submarines to conduct surprise operations has been critical to success during the War on Terrorism and will prove a key capability in unforeseeable future conflicts involving mobile adversaries operating without regard to national borders. Our submarines make use of their unique stealth, endurance, and agility to provide critical and irreplaceable capabilities, in support of joint forces, against the emerging threats and challenges of today and tomorrow.

- **Stealth.** Uniquely undetectable and survivable, U.S. submarines can operate covertly or overtly, creating surprise, fear, and uncertainty among adversaries and assuring access for friendly naval and joint forces. Of the five military domains (land, surface-sea, undersea, the atmosphere and space), undersea operations are the least visible and therefore the stealthiest. U.S. submarines remain virtually undetectable by other forces and their sensors, enabling them to operate with impunity—covertly when required, or overtly if desired—inside an adversary's threat envelope in advance of less survivable joint forces. Their stealth also gives them inherent protection from precision-guided missiles, electro-magnetic pulses (EMP) and chemical, biological, radiological, nuclear and enhanced high explosive (CBRNE) weapons. Under stealthy cover, the submarine's ability to deliver payloads in hostile or denied areas is singularly unique, providing the CINCs with survivable ground-truth sensors inside the enemy's battlespace as well as credible combat power for use against naval and land-based targets.
- **Endurance.** U.S. submarines conduct sustained, independent operations within an enemy's battlespace. They often operate alone in areas where detection or risks from hostile forces prevent other forces from operating. Their endurance, combined with their stealth, enables them to operate with no defensive or logistics support from other forces for months at a time. With their advanced sensors and precision firepower, they have a remarkably high "tooth-to-tail" ratio.
- **Agility.** Robust in capability and highly maneuverable, U.S. submarines carry out unique national, operational and tactical missions across the spectrum from peace to deterrence to war. Their ability to surge between theaters with sustained speed is a key capability in providing responsive, forward-deployed forces. Often "first in and last out," they provide presence, 24/7 intelligence collection and improved situational awareness through special operations during peacetime and pre-hostility phases. Able to transition to emerging missions on station, they also provide credible conventional deterrence, dominant undersea warfare and early and covert precision strike when conflicts arise. A single U.S. nuclear submarine can conduct a wide range of missions in one deployment.

SUBMARINE FORCE JOINT STRATEGIC CONCEPTS AND VISION FOR THE FUTURE

The submarine force's vision is to leverage the unique attributes of our ships to provide critical and irreplaceable capabilities, in support of joint forces, against the emerging threats and challenges of today and tomorrow. To support this, we emphasize four strategic concepts:

- **U.S. submarines assure access for joint forces.**

Our submarines operate "out front" and prepare the battle space in denied, hostile or sensitive areas. Because they can operate where other platforms cannot, submarines neutralize enemy anti-access systems or operate in spite of them, often enabling attacks against time-sensitive targets. Information provided by submarines, in conjunction with that available via integrated undersea surveillance systems (IUSS) and Surtass ships, provides valuable expeditionary capability for assuring access for joint forces.

- **U.S. submarines exploit their unique access to develop and share knowledge.**

Able to operate undetected very close to a potential adversary's forces or territory, our submarines collect information and provide real-time high data rate reporting about adversaries and their capabilities that other assets cannot—improving national and theater-level situational awareness.

- **Stealth, access, knowledge, and firepower make U.S. submarines a potent deterrent.**

In addition to strategic nuclear deterrence, our submarines provide the CINCs and the Secretary of Defense with unlocatable, close-in presence in support of diplomatic and military objectives. Accurate and timely knowl-

edge combined with early and unpredictable conventional attack capabilities from our submarines strengthen our leaders' deterrent options against aggression.

• Undetected presence and access enable U.S. submarines to project power with surprise from close-in.

Stealthy and survivable, our submarines provide an early and rapid precision strike capability against time-sensitive targets, as well as attack capabilities within contested or sensitive areas.

PURSUING A CAPABILITIES-BASED FORCE

Armed with this vision, the submarine force, in close coordination with industry and government laboratories, is moving forward to identify and invest in programs and technologies that bring the needed capabilities to our submarines and undersea systems. Through an enduring and comprehensive process, this consortium of warfighters, shipbuilders and technologists share ideas and a consistent focus. This process, called SUBTECH, ensures all current and future submarine program efforts are geared toward achieving our vision for the future. The capabilities that we are pursing can be summarized under three themes; extended reach, fully netted, and greater adaptability:

- Extended reach to increase the submarine's tactical horizon and collection capabilities, enabling better penetration of hostile or inaccessible areas to improve situational awareness and provide more information in support of CINC and national tasking. Current initiatives include the upgrade and modification of existing shipboard acoustic and command, control, communications and computer (C^4) ISR systems and development of off-board sensors.
- Submarine information systems fully netted with national and theater level assets to improve processing capabilities and provide integrated data for onboard and off-hull interpretation and knowledge sharing. Fully netted systems allow the data collected by submarines and their organic and off-board sensors to be distributed to joint forces and national agencies, while also allowing real-time reach-back from submarines deployed in forward regions to central intelligence and cueing resources.
- Greater adaptability to provide the submarine force with more mission flexibility and volume of firepower to adapt to emerging threats and technology. The development of modular concepts and designs and incorporation of interoperable COTS technology that can be rapidly upgraded and/or reconfigured will aid in supporting this concept.

IRREPLACEABLE SUBMARINE MISSIONS AND JOINT WARFIGHTING

Leveraging their enduring characteristics and guided by the above strategic concepts, submarines and undersea systems play a unique and thus irreplaceable role in joint warfighting and in fulfilling CINC and National requirements in the following primary areas: undersea superiority, battlespace preparation (including ISR and SOF), covert early strike, and global deterrence. I will now discuss our President's budget 2003 programs and initiatives in the context of these four mission areas. Although many of the programs and initiatives are applicable to more than one mission area, I will only include each under its primary mission area.

Undersea Superiority

U.S. submarines penetrate conventional enemy defenses to ensure undersea superiority and sea control, defeating enemy area denial capabilities. Our submarines are critical to the Navy's ability to wrest control of the sea from a determined enemy employing mines, cruise missiles and/or quiet, advanced diesel submarines. They can disrupt and destroy our adversaries' military and commercial operations at sea, ensuring maritime dominance for the U.S. or its allies. Over a number of years, our submarines have established unparalleled anti-submarine and anti-surface capabilities. Armed with significantly improved sensors and weapons, today they provide an even greater ability to locate, track and if necessary destroy submarines, surface ships and shipping in both the open ocean and the littorals.

Undersea superiority enables the safe arrival and employment of joint forces in distant theaters of operations. Our submarines and other undersea surveillance assets (e.g. integrated undersea surveillance systems (IUSS)) are critical to the Navy's ability to ensure freedom of the seas and the flow of forces in support of joint operations in the face of an adversary's maritime threat.

President's budget 2003 acquisition programs and initiatives to support continued undersea superiority include the following:

• Underwater Acoustics

Acoustic superiority over modern diesel and advanced nuclear submarines is fundamental to control of the seas, underwater dominance and assured access for our naval and follow-on forces. Current initiatives include use of a standard sonar system (TB–29 towed array with COTS technology) for all submarine classes, integrated undersea surveillance systems (IUSS) and Surtass ships, and continued development and installation of acoustic rapid COTS insertion (ARCI) sonar systems to maximize collection of acoustic data.

Annual updates via the advanced processor build installation and management plan have proven effective in steadily maintaining ARCI systems up to date. Shipboard installations are being done in a 2-year cycle to best fit submarine deployment and operational schedules.

All deploying SSNs will have towed array ARCI (Phase II) by October 2003 and hull mounted ARCI (Phase III/IV) by October 2005. All SSBNs will have towed array ARCI by October 2006 and hull mounted ARCI (Phase III) by October 2010. SSGNs will have towed array and hull mounted ARCI installed after conversion.

• Submarine Weapons

Submarine-launched torpedoes provide essential combat power for sea control missions. Submarine-launched Mk 48 advanced capability (ADCAP) heavy-weight torpedoes are the most effective anti-shipping weapons in the Navy. Advancements in submarine weapons to ensure continued undersea superiority and sea control in response to emerging threats in the littoral waters include the following:

• Improvements to the Mk 48 ADCAP. Modifications are in progress to upgrade the current inventory of ADCAPs from Mod 5 to Mod 6, yielding significant improvements in weapon guidance/control and propulsion systems and improved performance in the difficult littoral environment. The Mod 6 guidance and control section has four times the memory and processing speed of its predecessor to support continual software updates for enhanced weapon performance. These software improvements, coupled with hardware developments that support installing updates onboard the submarine, will enable improved capability at a reduced cost. Propulsion system improvements include sound-quieting to reduce weapon operating noises and reduce target alertment, yielding a significant tactical advantage for our submarines.

• Development of the common broadband advanced sonar system (CBASS) torpedo as the next improvement to the Mk 48 ADCAP. CBASS takes advantage of improved sonar technologies and processing capabilities and is deliberately designed to defeat the submerged adversary of the future (very quiet, low operating speed, diesel or air independent propulsion (AIP) platform, capable of high speed evasions, deploying countermeasures, operating in a high noise, high contact density, very shallow water environment). Initial operational capability (IOC) for CBASS is 2007.

• Submarine Countermeasures. Work continues on making submarine countermeasures uniform in dimension so every submarine can fire all countermeasures in the inventory. The new 6″ countermeasures offer increased performance and endurance over the previous generation. Additionally, progress continues on the anti-torpedo torpedo, a joint submarine and surface force weapon, with first at-sea testing scheduled in 2006.

• Submarine Combat Control Systems (CCS) Modernization

Current CCS enhancements will enable full capability for tactical Tomahawk (Tactom) and use of the IT21 communications system, deliver significant improvements in high contact density littoral areas and enable periodic improvements in capability. The program implements an open architecture system similar to ARCI sonar that is more conducive to competition for software and hardware development.

Today's CCS integrate two different functions: contact tracking and management and control of weapons. Our ultimate goal is to split these functions so that contact management upgrades are not tied in with costly and time-consuming testing requirements for upgrades to weapon control systems. We fully intend to apply the lessons learned from our experience with the ARCI sonar system in developing the architecture and the advanced processor build process for the CCS.

Equally important is the installation of phase 2 of the tactical integrated digital system (TIDS), a mission critical digital network incorporating the Navy's first on-board tactical network. It will provide robust, survivable servers and network hardware that will serve as a ready host for a wide range of future applications. It is a fundamental building block to achieving network-centric warfare capability on submarines. The first installations have been completed, and the program is aiming to complete fleet wide installation within the FYDP.

• Off-board Sensors

Recent efforts have accelerated experimentation, development and fielding of UUV, unmanned aerial vehicles (UAV) and deployable systems to expand the submarine's payload and reach. Autonomous, off-board vehicles and sensors deployed from submarines will allow covert penetration of denied/hostile areas with leave-behind persistent intelligence collection capabilities in support of the warfighting CINCs. Off-board vehicles and sensors will improve the situational awareness and multiply the operational impact and flexibility of their host platform—and the supported joint forces—at significantly reduced risk.

• The long-term mine reconnaissance system (LMRS) is an autonomous UUV currently under development that will enable our submarines to search for mines in denied littoral waters and other areas while remaining covert and out of danger. LMRS is scheduled for IOC in 2005.

• The mission reconfigurable UUV (MRUUV) is a next-generation UUV that will provide the ability to greatly extend the range and variety of off-board sensors. MRUUV will be the Navy's first fully autonomous vehicle that has specified interface standards to enable acceptance of a wide array of sensor payloads.

• Cueing provided by the integrated undersea surveillance system (IUSS) is essential to the Navy's undersea warfighting capability. Current fixed and mobile systems provide persistent maritime surveillance worldwide.

• IUSS fixed systems, the legacy sound surveillance system (SOSUS) and the newer fixed distributed system (FDS), provide long-term, forward-deployed covert surveillance. Cost of these systems is typically shared with our allies.

• For our mobile IUSS component, SURTASS ships will be even more capable with the installation of highly effective TB–29A twin line arrays, with first installation scheduled to occur in fiscal year 2004. Additionally, after receiving authorization from the National Maritime Fisheries Service, we expect to begin low frequency active sonar operations this year.

• Development of advanced deployable system (ADS), a transformational system that provides rapid deployability, continues with initial delivery of an operational system to the fleet in fiscal year 2005. For the future, we are developing a variant of ADS that will not require a cable link to shore.

• Submarine Rescue

Following the sinking of the Russian submarine *Kursk* and subsequent loss of lives, the Navy conducted a thorough analysis of the safety and habitability of our submarines following a major casualty. While we had already taken a proactive role in this area including installing new escape equipment and developing a new rescue system, fiscal year 2003 provided an opportunity to further improve our capability. The Navy has increased funding to procure and install new carbon dioxide removal equipment to allow sailors to survive until escape or rescue. Additionally, we have accelerated the installation of an improved escape suit by 2 years from 2007 to 2005 and are pursuing initiatives to re-establish pressurized escape training for our sailors.

Battle Space Preparation, including ISR and support of Special Operation Forces (SOF).

• ISR. Space-based and airborne signals interception is complemented in critical ways by our submarine intercepts. Our submarines can position themselves to capture electromagnetic emissions or observe maritime activities or tests that would elude other sensors and systems. They are critical assets in ensuring comprehensive, persistent surveillance of many information domains (visual, acoustic and electronic), ensuring complete situational awareness and precluding enemy sanctuary. Submarines also provide sole-

source "tip-off" information, which enables the intelligence community to optimally allocate other collection assets.

U.S. submarine-gathered intelligence focuses military planning and operations and minimizes threats to national assets. Operating closely and continuously to observe activities without the adversary's knowledge, submarines provide battle group and joint force commanders real-time information that helps define and prepare the battle space. Intelligence gleaned from such operations ranges from the highly technical details of military platforms to knowledge of a potential adversary's military doctrine and intentions. Their non-provocative and non-escalatory presence also enables them to gain "ground-truth" intelligence that aids diplomatic efforts and helps anticipate (and preclude) hostilities.

Programs and initiatives to enhance submarine ISR capabilities include the following:

• Submarine Communications

The submarine IT21 communications suite significantly improves connectivity via wideband (128 kbps) and narrowband (32–48 kbps) internet protocol (IP) technology. IT21 communications provide secure, covert connectivity in the littorals and more efficient use of limited satellite resources while enabling our submarines to be fully netted with the carrier battle group. Submarine IT21 is being outfitted on all submarines deploying with the battle group; and, to date approximately 20 percent of the SSN fleet has this capability. The goal, as supported by the program of record, is for all submarines (SSN, SSBN, and SSGN) to be modernized with this capability by the end of fiscal year 2007.

• Submarine Imagery and Signals Intercept

Current efforts in the areas of tactical imagery and visual intelligence (VISINT) will significantly advance the submarine's capability from World War II era optics to state-of-the-art imaging technologies. Efforts include real-time rangefinding, continuous video output (both visual and infrared) and digital still camera imaging. This high quality digitalization of imagery will enable the submarine to gain greater tactical control while operating at periscope depth in high contact density, littoral areas and also provide high resolution VISINT to theater and national intelligence networks quickly.

Submarine operations since September 11 have highlighted the critical importance of sensitive, state-of-the-art signals intelligence (SIGINT). To ensure maximum capability in this area, we have greatly accelerated procurement and installation of the state-of-the-art AN/BLQ–10 SIGINT suite which provides our submarines the capability to exploit the entire spectrum of signals.

• Submarine Geospatial Information

The submarine force continues to pursue improvements in precision position/attitude/time determination and geographic reference that are critical to exchanging relevant contact information in a tactical or national network. Nearly all operational SSNs have been upgraded to the AN/BPS–15(H) integrated radar and digital chart system, which has significantly enhanced ship's safety during surfaced and submerged operations in high contact density environments. All remaining SSNs will be upgraded to the AN/BPS–15(H) by 2004. The AN/BPS–15(H), in conjunction with ring laser gyro navigator, the replacement for the legacy electronically suspended gyro navigator, will provide seamless integration with geospatial standards and will meet Navy goals for electronic navigation.

• SOF. U.S submarines are excellent platforms to deploy and retrieve covert forces. Our submarines' inherent stealth and endurance—as well as their sophisticated communications equipment, sensors, and navigation suites—make possible the secure, precise and reliable insertion and extraction of SOF (SEALS, Rangers, and Recon Marines) close to shore objectives. These covertly placed personnel can plant remote sensors, collect intelligence, exploit and/or disable weapons and communication systems and perform other classified missions inside denied areas. OEF has demonstrated conclusively the importance of being able to deploy SOF quickly and covertly in places and situations that cannot be anticipated.

The submarine force has always had the capability to insert SOF, but the recent decommissioning of U.S.S. *Kamehameha* has limited our capability to short duration employments with small teams of special forces. SSGN,

in combination with the advanced seal delivery system funded by SOCOM, will enable us to achieve a quantum increase in our capability to insert and support Special Forces from submarines. The prospects are exciting, and we are beginning to lay the foundations for reaping significant operational capability benefits from the synergy of SSGN and SOF. To support this, we have updated nearly all of our non-shipbuilding procurement programs to give SSGN the same capability as SSNs in acoustics, imaging, combat control and communications.

- Covert, Early, Conventional Strike

Submarine-launched land-attack missiles provide essential combat power for strike missions. U.S. submarines provide combat-credible presence with responsive and reliable delivery—early strike, with surprise, from close-in. Littoral access and survivability enable unique strike capabilities with reduced risk to personnel.

Our submarines are not threatened by area denial weapons such as coastal cruise and tactical ballistic missiles or weapons of mass destruction, thus delivering a conventional punch with impunity. They can execute attack operations against targets that might otherwise be alerted by a visible naval presence. Historically, submarines have deployed one-third of the Navy's Tomahawk land-attack missiles, and submarines launched nearly 38 percent of all Tomahawk cruise missile strikes during the first phase of OEF.

The development of Tactom will enable our submarines to project power more swiftly with precision against defensive systems and other time-sensitive targets. In the future, SSGN, loaded with deployable sensors (e.g. unmanned vehicles), Tactoms, future land-attack missiles and miniature air-launched decoys and jammers, will provide robust capability to destroy an integrated air defense system (IADS) or any other anti-access system from within the adversary's threat envelope.

- Global Deterrence

U.S. submarines fulfill a unique role in our Nation's ability to deter aggression. Asymmetric in concept and capability, our submarines provide an unlocated but certain strike capability—both nuclear and conventional—whose time and place of employment is completely uncertain in the mind of a would-be adversary. The survivable offensive strike weapons carried by our nuclear submarines play a pivotal role in achieving global deterrence as part of the Nation's new strategic triad.

Ballistic missile submarines (SSBNs) are our Nation's choice for nuclear deterrence. Our SSBNs are virtually undetectable. They comprise greater than 50 percent of our Nation's nuclear deterrent, and 100 percent of our Nation's survivable deterrent, using only 34 percent of our strategic budget and less than 1.5 percent of our naval personnel.

- The Presidential Budget for Fiscal Year 2003 fully funds a service life extension program to match the life of D5 submarine-launched ballistic missiles (SLBM) to the recently extended 44-year life of *Ohio*-class SSBNs. This program refreshes the missile guidance and electronics systems to prevent obsolescence and procures additional missiles for required flight testing. The D5 life extension program will ensure maximum weapon system reliability and accuracy for this critical strategic deterrent.

In addition to traditional strategic deterrence provided by SLBMs, Tomahawk cruise missiles carried onboard *Los Angeles*- and *Seawolf*-class attack submarines (and *Virginia*-class submarines, when delivered) provide a capable conventional deterrent. SSGN will add up to 154 Tomahawk or future Tactom cruise missiles per platform to advance our capabilities in this area.

ENDURING PROCESSES FOR INNOVATION AND TRANSFORMATION

The submarine force has incorporated innovative processes to ensure our submarines have the necessary tools to meet the challenges of today as well as those of the future.

As I have already referred to, SUBTECH is a collaborative organization comprised of OPNAV, industry, acquisition community and fleet representatives developed to identify and prioritize promising technologies consistent with the submarine force vision. Working hand-in-hand with SUBTECH, the submarine force's Experimentation Working Group ensures our vision is pursued through an end-to-end process that guides concept development, war gaming, science and technology, experimen-

tation and research and development to deliver the required fielded capabilities to the fleet and transform the force vision into reality.

The payloads and sensors program uses the above processes, leveraging and integrating technologies developed by others, to identify submarine payloads and sensors for the future. The SSGN payloads and sensors program will make use of SSGN's large ocean interface—22 large-diameter, 44-feet tubes—to develop future payloads and sensors to be deployed by SSGN. Additionally, SSGN will serve as the transformation "bridge" to provide these and future advanced joint payloads, including mission-specific weapons and sensors, via the technology insertion program, to *Virginia*-class submarines with reconfigurable torpedo rooms, advanced sails and large payload modules.

CONCLUSION.

Mr. Chairman, thank you for the honor of testifying today. I would like to close by reiterating the critical need for submarine-delivered capabilities as a vital component of our Nation's defense. The capabilities we are building into our ships and undersea systems today and those that are planned for tomorrow are crucial to meeting the threat today and in the future. Our submarines are stealthier and more capable than any ships in the world. Our relevance in regional peace or conflict enabled by our stealth and combined with the endurance and agility that nuclear power brings are absolutely necessary to support CINC and National mission tasking.

Innovative modernization of our current submarines, continued development of the superb *Virginia*-class and transformation of four *Ohio*-class fleet ballistic missile submarines to SSGNs will ensure the U.S. remains the preeminent submarine force. With your support, we will continue to upgrade and maintain our platforms as the most advanced, technologically sophisticated submarines in the world.

Senator KENNEDY. Thank you very much.

Admiral McCabe.

STATEMENT OF REAR ADM. MICHAEL J. McCABE, USN, DIRECTOR, AIR WARFARE DIVISION, DEPARTMENT OF THE NAVY

Admiral MCCABE. Senator, I am honored to be in front of you today and have a chance to talk about naval aviation. I have a short statement for the record I would like to submit.

Senator KENNEDY. Please.

Admiral MCCABE. I would echo the comments of the CNO and the prior witnesses on the challenges and the opportunities facing the Navy today, and I look forward to your questions.

[The prepared statement of Rear Admiral McCabe follows:]

PREPARED STATEMENT BY REAR ADM. MICHAEL J. MCCABE, USN

Mr. Chairman and distinguished members of the Seapower Subcommittee, thank you for the opportunity to discuss the state of naval aviation, with specific emphasis on the programs and plans to sustain and modernize our P–3 and MH–60 platforms and equipment.

When I appeared before this subcommittee last year, I spoke of how the leading role played by naval expeditionary forces in responding to crises pointed to an increasing demand for what the Navy-Marine Corps team and naval aviation bring to the fight. Clearly in this past year, this trend has continued—even accelerated—as our forward-deployed carrier battle groups and amphibious ready groups have served the Nation's interests in support of Operations Noble Eagle and Enduring Freedom.

Our remarkable success in these operations validates the requirement for unconstrained, sustained and forward naval maritime forces. The lion's share of the credit rests with the sailors and marines who serve with distinction and honor—meeting the challenge of increased operations tempo despite the effects of a prolonged drawdown of personnel and equipment. I appreciate the actions by members of this subcommittee, the Senate, and the administration to meet our most pressing personnel and readiness needs. I am mindful of the choices we need to make to balance the modernization and recapitalization efforts necessary to ensure naval aviation and naval maritime forces remain capable of meeting the Nation's security requirements into the 21st century and beyond.

MARITIME PATROL AND RECONNAISSANCE

Maritime patrol and reconnaissance aircraft (P–3/EP–3) continue to fulfill critical warfighting roles, including: undersea warfare; surface warfare; electronic warfare; intelligence, surveillance, and reconnaissance; maritime interdiction; littoral strike and targeting. Enhanced connectivity and integration into battle group concept of operations (CONOPS) places a premium on these aircraft as we move into the future. A key modernization effort for both the maritime patrol and reconnaissance fleet is the replacement of mission systems in our legacy aircraft to give the warfighter the capability to conduct anti-submarine warfare (ASW), anti-surface warfare (ASUW) and intelligence, surveillance, and reconnaissance (ISR) in the 21st century.

The P–3 ASUW improvement program (AIP) is an upgrade to the P–3 weapons system which was designed to provide a more robust anti-surface warfare capability. The COTS sensor and connectivity improvements allowed for rapid fleet introduction that proved their value during multiple worldwide operations, most recently Operation Enduring Freedom (OEF). P–3 AIP-equipped aircraft collected, analyzed, and disseminated time critical intelligence to joint and coalition forces in OEF, while also participating in leadership interdiction and maritime interdiction operations in the Persian Gulf and Indian Ocean. Our investment in AIP is well leveraged, as this aircraft has performed well in unique roles in the global war on terrorism, including overland and overwater ISR operations, littoral surveillance, maritime interdiction operations, and full support of joint task forces. AIP is a suite of sensor upgrades that significantly and rapidly increases capabilities not only in ASUW, but also for over-the-horizon targeting (OTH–T); command, control, communications, computers, and intelligence (C^4I); and survivability. By protecting the battle group from surface and sub-surface threats, our P–3 aircraft in conjunction with organic helicopter assets, allowed the carrier air wing's tactical aircraft to focus exclusively on power projection.

Our EP–3E electronic warfare and reconnaissance aircraft continue to meet critical CINC ISR collection requirements. The primary mission of these aircraft is to detect and report tactically significant communication and radar signals then associate these signals with enemy warfare activity or potentially hostile units. A P–3C to EP–3E conversion program is in place and fully funded to meet the inventory requirement of 16 aircraft. There are two planned upgrades to the EP–3E force. The sensor system improvement program (SSIP) integrates and installs new tactical communications, electronic signals monitoring (ESM), and special signal processing and exploitation systems. The second effort is the joint airborne signals intelligence (SIGINT) architecture (JASA) block modernization program (JMOD). The JMOD program is an extensive systems upgrade designed to keep the EP–3 ahead of the projected threat and is the bridge to future Navy manned and unmanned ISR programs.

MULTI-MISSION MARITIME AIRCRAFT

The multi-mission maritime aircraft (MMA) program plan presents a path forward to recapitalize the capabilities currently provided by the maritime patrol and reconnaissance force. The Navy has completed the AoA, identifying a manned aircraft as the key element of the system. The analysis also identified the potential application of unmanned aerial vehicles (UAV). In the interim, the legacy P–3C force is going to be kept viable through sensible modernization until the introduction of MMA. This approach will enable the Navy to deliver more reliable and capable replacement aircraft faster, minimize costs and technical risks. Our schedule has the selection of the preferred alternative for development in fiscal year 2004 with the goal for introduction to the fleet in the 2010–2012 timeframe.

UNMANNED AERIAL VEHICLE (UAV)

In August of this past year, the Secretary of the Navy announced his intent to increase the Navy's emphasis on unmanned systems. With increased emphasis on this key transformational area, the Navy and Marine Corps re-examined their UAV requirements and priorities. The resulting naval UAV strategy has both a short-term plan to capitalize on existing systems and a longer term plan to develop a family of unmanned vehicles.

The Navy has initiated an accelerated procurement of a Global Hawk system as part of the broad area maritime surveillance (BAMS) requirement to satisfy the Long-Dwell-Standoff ISR mission area. This will be a two-phased process. Phase I will be procurement of an Air Force production line Global Hawk system which will have modifications to the existing sensor package to make it more compatible with

a maritime environment. A system will consist of two air vehicles with payloads, a launch and recovery element and mission control element. The system will be used primarily for experimentation and CONOPS development leading to phase II. Phase II (now called BAMS UAV) will leverage from the broad area maritime and littoral armed intelligence, surveillance, and reconnaissance mission needs statement and AoA to competitively acquire high altitude, long endurance vehicles with robust and fully capable maritime sensor payloads. The thrust of BAMS UAV will be towards developing sensor/payload capability or identifying existing sensor/payloads capable of performing BAMS missions. The Navy intends to explore all non-developmental options for the vehicle. A competition may result if multiple vendors can provide vehicles appropriate to the Navy's requirement.

MH–60 HELICOPTERS

The CNO recently approved a fleet proposal to restructure our Navy helicopter forces around the two linchpin airframes to the Helicopter Master Plan, the MH–60R and MH–60S. This new concept of operations (CONOPS) will align the leadership of helicopter aviation with the carrier air wing and bring about warfighting efficiencies. Our helicopter force will downsize from seven type/model/series to two, while meeting our littoral warfighting requirements. Capitalizing on efficiencies of singular maintenance, logistics, and training systems, our plan satisfies the needs of both our Active and Reserve Forces.

The MH–60R multi-mission helicopter is the future aircraft for the Navy's tactical helicopter community supporting surface combatants and aircraft carriers. The MH–60R will eventually replace the Navy's existing fleet of SH–60B and SH–60F helicopters. The warfighting systems will provide an advanced multi-mode inverse synthetic aperture radar (ISAR), the airborne low frequency (dipping) Sonar (ALFS), a greatly enhanced electronic support measures and self-defense sensor suite, and upgraded mission computers. In June 2001, the MH–60R program received approval from ASN(RDA) to revise the acquisition strategy from remanufactured airframes to new production aircraft. The acquisition program rebaseline, incorporating this new manufacture strategy and extension of the schedule to allow further subsystem testing and maturity, has been approved.

The MH–60S multi-mission combat support helicopter is the future aircraft for organic airborne mine countermeasures, combat search and rescue, special operations, and logistics support. The MH–60S will replace the Navy's aging fleet of H–46, H–1, H–3, and HH–60H helicopters. This spring, we certified the fleet replacement squadron "ready-to-train" and we plan to introduce initial operational capability of the MH–60S in the fall of 2002. Retirement of the CH–46D, the Navy's logistic workhorse (in its 34th year of service) is targeted for August 2004. Follow-on systems changes will introduce the network, sensors, weapons and survivability suites necessary for the multi-spectral battle group tasking.

SUMMARY

America's global security interests, recent world events and on-going operations in the Northern Arabian Sea and Afghanistan are validating both our past decisions with regard to aircraft, weapons and personnel, as well as our commitment to sustaining the readiness of our forces, which now routinely deploy in harm's way. Forward presence, maritime dominance, and decisive landward power projection in the littorals require modern aircraft and weapons systems capable of responding rapidly to a wide range of missions in an increasingly complex and demanding threat environment. We must plan, invest, and equip our maritime forces so they are shaped to bring overwhelming force to the fight. Naval aviation continues to make extraordinary contributions to the Nation's defense. We are committed to keeping naval aviation robust and relevant and we will keep faith with our warfighters in the fleet to ensure they have the aircraft and equipment necessary to engage in combat and prevail.

Senator KENNEDY. Maybe I could talk, Admiral McCabe, about the purchase of the F–18s. What is on the horizon now in terms of that issue?

Admiral MCCABE. We are very happy with the F/A–18E/F. The first E–F squadron and F–18E squadron deploys on *Lincoln* this June. The contractors provided for us exactly the airplane we asked of them, so we are very happy with it. We would like to buy it as fast as possible. With some of the challenges the CNO talked about

and the framework of decision we face with paying for the manpower and then the readiness, we had to make some late decisions on the quantities that we were buying. But it is a top priority for us to buy that aircraft. We would like to replace the F–14s as rapidly as possible. The F/A–18E/F is half the cost of an F–14 to operate and so, while the F–14 has performed brilliantly even in Operation Enduring Freedom, it is time the move on to the new technologies. So we strongly support that airplane, Senator.

Senator KENNEDY. We might come back with you on that, on that issue. I would be interested in the justification and the changes that have been suggested.

Admiral McCabe, we are obviously saddened by the loss of life in the V–22s over the last year. We heard from the panel to review the V–22 last year during the time we were trying to work out the problems. Can you describe now what the Navy and Marine Corps will need to do to ensure that the CH–46 fleet will support operating squadrons in the interim before we get to the V–22?

Admiral MCCABE. A great concern, more for the Marine Corps than us. We are going to replace our H–46s with the MH–60S and we will have our H–46s out of service by 2004 in September/October. The Marine Corps because of the V–22 delays will have to fly the H–46 for some time longer. Some of the engines in the H–46 case have been overhauled as many as ten times and so it is a concern. They have an engine improvement program, a monitoring system that is in place. But based on some of the recent challenges we have had, that bears close watch and it is a concern because of the age of those aircraft. I believe General Jones has said before there are H–46s that have been in service longer than he has.

So it is something that NAVAIR SYSCOM pays very close attention to, probably more than any of the other aircraft we have.

Senator KENNEDY. Can you give us the update on the V–22?

Admiral MCCABE. Right now everything is on track for them to resume flying. The directed inspections and the improvements, the oversight——

Senator KENNEDY. Resume flying when?

Admiral MCCABE. I am not sure, Senator. I would have to——

Senator KENNEDY. There was a squib in the paper recently that it is very soon and we are interested in when that is going to take place. Also, as you are aware, the Feingold amendment required notification to Congress, I guess, 30 days before the flight.

Admiral MCCABE. Yes, sir. I do not believe they are that close, but they are making progress. I will get back to you with the specifics.

But I know that we meet regularly with a broad audience at NAVAIR reviewing the progress of the airplane with oversight from OSD and senior Department of the Navy officials.

Senator KENNEDY. What is your conclusion on this? What is the progress that has been made?

Admiral MCCABE. I believe that the program manager is making good, steady progress, but from my standpoint on the Navy—the Marine Corps may have a different view—we need to proceed very carefully here and not rush back into operations and make sure that they have met every milestone and we are very confident that

they will be successful from this point on. I do not believe we can accept any more failures.

Senator KENNEDY. That is true. But you will let us know about the time, because I understand that it is very soon. We are interested in your assessment as well, obviously, of the flight.

Admiral MCCABE. Yes, sir.

[The information referred to follows:]

As a result of two tragic mishaps that occurred, flight-testing was suspended while the V–22 Osprey program underwent an extremely rigorous, all encompassing USD(AT&L) directed review. This effort included two safety mishap investigations, a Blue Ribbon panel, a NASA independent review, and GAO and DODIG investigations and audits. These investigation teams, which included aviator. and testing experts from across industry, government agencies and academia, recommended many improvements to the program. Through this process the V–22 program and aircraft was modified to ensure safe flight operations. The return to flight report was delivered to Congress by the Defense Department via the acquisition chain of command on April 5, 2002, and the first flight is currently scheduled for mid-May 2002.

After a detailed review of the program with the program manager and other officials involved in the review process, I believe the systems engineering approach established to address acceptable risk has been scrutinized and is sound. Senior leadership from both the Department of the Navy and Air Force have been following the review very closely and have expressed unanimous support. An active executive committee, with participation by Navy, Air Force, Marine Corps requirements and acquisition executives, testing agencies, and safety centers, along with industry representatives, has meet six times since June 2001 and will continue to provide detailed oversight to the testing and acquisition process. The consensus is that government and contractor management teams are well qualified, well led and motivated to make the program succeed.

The OSD-directed review was rigorous and included 7,800 hours of scrutiny and analysis of the flight control system and 1,700 hours of lab tests to include pilot-in-the-loop simulation. The process included a "triple lab" analysis, which tied together a flight simulation lab, avionics integration lab and a flight control systems integration rig. This system, which tests actual flight control components in a laboratory environment, has been so successful that the Boeing Company plans to incorporate the process to verify flight control systems on their other platforms.

Specific design changes incorporated as a result of the investigations include modifications to the hydraulic system, flight control system and software, and pilot emergency action procedures. Modifications were made to the hydraulic system including re-routing lines to improve clearances and reduce line chaffing. The system includes triple redundancy equivalent to commercial airliners systems. Modifications were made to the warnings, cautions and advisory annunciations and all 147 pilot emergency procedures were revalidated.

The number of pilots involved in flight test has been reduced to ensure they are receiving adequate flight time for improved proficiency and a greater safety margin. The ground-testing program has been robust and included over nine hours of rotor turn time to ensure all systems are ready for flight. As a result of the depth and breadth of these positive changes, I am confident that the flight test program is ready to move forward.

My assessment of the program is that it's back on track and, if they continue to meet cost, schedule and performance milestones safely, should continue to receive service, OSD and congressional support.

Senator KENNEDY. You have been following the progress and your top people have been monitoring that as well. If there is any difference in terms of it, we want to certainly know and have your input on that as well.

Admiral Balisle, I want to talk a little bit about the ERGM program. Two years ago the Navy was projecting the ERGM program that would achieve initial operational capability in 2004. It slipped some 2 years from the original course last year. The Navy informed the subcommittee that ERGM will achieve IOC in 2005. I know this has been an important part of the plans for improving fire sup-

port capability, but we seem to be experiencing continuing delays in the program.

So how confident are you that the ERGM contracting team can solve the problems and remain on schedule?

Admiral BALISLE. Senator, ERGM is definitely a high tech program and is a new technology for our gun-fired ordnance, and it has had problems in the past as a result of that technology edge. We think the program has made considerable progress in the last year. It is now passing its tests. We believe that the design is sound. We have recently made a change in the ERGM projectile to go from a submunition to a unitary warhead, which is a more lethal warhead for the target set and also reduces risk, we feel, in that particular round.

We believe fiscal year 2005 in the program, the way it is aligned now, is a reasonable target. But we certainly believe that the technology base now is solid and we think it will be successful.

Senator KENNEDY. The obvious concern is whether down the line we are going to have similar kinds of problems with the 155 mm gun on the new destroyer.

Admiral BALISLE. Yes, sir.

Senator KENNEDY. Are there lessons to be learned from this that can be helpful so we can avoid problems?

Admiral BALISLE. Sir, we certainly think there are lessons to be learned. The technology in these rounds, GPS-guided projectiles and projectiles that have to be fired at a very high force when they come out of the gun, were all part of the learning curve. They will be common problems for the 155 mm gun. So it is our hope and belief that there will be a significant learning curve as we go to that technology.

Senator KENNEDY. Well, we want to keep abreast of that because that has important implications down the road.

General Whitlow, on our mine warfare capability—as you well know, our continuing interest in this issue—Admiral Fallon indicated that the recommendation was to pursue other technologies to do the job. He is not specific about the program or programs that would meet the requirement. Your prepared testimony mentions a three-track corrective action program.

So could you describe in some detail what are the program efforts under the three-track approach?

General WHITLOW. Yes, sir. I truly appreciate, Mr. Chairman, your continued interest in this very vital and important area, in particular since we are so involved with the littoral and shallow areas nowadays in our war on terrorism.

Basically, as I spoke to earlier, the SABRE–DET program, very shallow, 10 feet and on, was cancelled for two reasons, and I will highlight that. There is some confusion that we do not have that type of capability, unfortunately. We do have the capability to clear mines in that arena; it is just not the capability we would like to have. We have to use special warfare divers and EOD type of divers to clear as well as mammals to work that region.

But what we have done on the three-track program is step back once SABRE–DET was cancelled and look at where we were across the mine warfare spectrum, in particular the very shallow water. What we realized was, even if we would have been able to success-

fully employ and deploy the SABRE–DET system, which unfortunately while it was under development we did not look at other systems, we did not have the navigation systems in our assault craft to navigate down those lanes that we would have cleared.

So the first track we are looking at is ensuring that we have the proper precision navigation in our craft. That is everything from the Marine Corps AAAV program to all of our landing craft the LCAC and the LCU.

The second track we are looking at is exploring other options. One of the options you mentioned earlier——

Senator KENNEDY. Do you not have that? I mean, is that not the whole GPS, accurate, sufficiently accurate now with the progress made that it gives you an accuracy?

General WHITLOW. Yes, sir, we have the accuracy.

Senator KENNEDY. What is the problem, then?

General WHITLOW. Well, the problem we are exploring through the acquisition process, experimentation process, is delivery mechanisms and the lane marking. Once we drop the ordnance to clear such lanes, then marking those lanes so approaching craft—and being familiar with the sea, you certainly understand how difficult that can be. So sufficiently taking care of the mines below the surface in very shallow and then marking the lane at the same time to ensure that the aircraft and the landing craft have the same type of coordinates and are married up accurately enough not to put our combat forces in danger.

The other area we are looking at is long-term and has already been—Senator Sessions has mentioned earlier the unmanned vehicles. That will be more long-term as we are just coming into the realization of how to appropriately use and deploy and retrieve if possible those types of systems. Such systems as the LMRS and the remote mine-hunting system will certainly help us along those ways to accomplish that mission.

So we have the near-term——

Senator KENNEDY. How does that work, just conceptually?

General WHITLOW. Well, sir, what we are looking at, the CNO hit on it a little bit. We are looking at the littoral support ship being a class of ships. One of those class of ships, it would actually host a family of these systems, everything from the RMS, which is a fairly large remote mine-hunting system, would go out, deploy, and then it could possibly deploy sub-crawlers, if you will, to go into the very shallow water, not only to clear, detect and clear the mines, as well as mark the lanes.

So we are looking at an entire family of systems. As I said, that is more long term, but the littoral support craft, if you will, will serve as the host to that. Those are basically the three tracks we are looking at.

Senator KENNEDY. The third one then is?

General WHITLOW. Unmanned. Yes, sir.

Senator KENNEDY. Then two is establishing the channels going in?

General WHITLOW. Yes, sir.

Senator KENNEDY. What is the third?

General WHITLOW. It is the step marking the channels and navigating the channel. Of course, the near-term third track is not only

the precision navigation, there are off-the-shelf systems. If you fly a local Cessna, you can get a GPS system. But we need something a little more precision than that, but those types of systems for our landing craft.

Of course, our near-term answer is the countermeasure systems we have now for neutralization, is our SEALs and EOD divers and mammals in the water, which is what we are trying to get away from as soon as possible.

Senator KENNEDY. My time is up. We will continue to pursue and follow. I must say, when I was out in the Gulf and I saw those mammals. That is one of the most mind-boggling experiences. Everyone sees those kinds of mammals down in the sea lanes or take our children to them. But to see how they were used at that time to be in patrol, for example, in order to detect, protect ships, was just enormously impressive. I did not know they were still using them.

General WHITLOW. They are very effective. But we would like to as soon as possible get them out of that business.

Senator KENNEDY. Yes. Thank you.

Senator Sessions.

Senator SESSIONS. Thank you, Mr. Chairman. I thank you for constantly keeping an eye on the question of mines. I was in the Persian Gulf last year on the mine countermeasures ship, the *Ardent,* which I understand is forward-deployed. It certainly would not be worthwhile to bring that rather slow ship all the way back to the United States. But it has worked well and I was impressed with that.

Yesterday on an airplane flying back to Washington, I sat by a young Navy civilian who is also a naval reservist and works at the Mine Countermeasures Research Center, in Panama City.

I talked with him all the way coming back. He graduated from Tuskegee Institute in Alabama and has done very well. I was impressed with all they had ongoing.

First let me say I agree with Senator Kennedy. If there is a breakthrough in the capability of mines against American surface ships, then we have had a major strategic alteration of our military power, and our ability to project our power around the world as we would like.

Are you satisfied that you have the equipment and the research funds necessary to make sure we stay ahead of that threat?

General WHITLOW. Yes, sir, I am. As you mentioned, the CSS system down at Panama City is doing tremendous work. We are funded correctly. The CNO has ensured that. The Secretary of the Navy has ensured that. I am not satisfied and will not be satisfied personally until we have solutions. But as far as funding goes, Senator, we are funded correctly. If I put more money toward the systems, frankly, I would probably be overfunded, because we have some physics issues that we just are not there yet, and some technology issues we just are not there yet.

But as far as funding goes, we are funded correctly. Unfortunately, physics is standing in our way. But there is some tremendous progress and the remote vehicles as well as remote sensing is showing tremendous progress. You mentioned Panama City. That is where it is all taking place.

Senator SESSIONS. Admiral Sullivan, although operations in the littorals are not new for submarines, the focus on submarines operating as a part of a battle group in the littorals is evolving. What is being done to address the challenges in submarine weapon and combat system development to make them more effective operating against littoral threats as part of a battle group there?

Admiral SULLIVAN. Sir, as I mentioned in my opening statement, one thing we are doing is with our sonar systems, which are COTS-based, open architecture, and we are doing that with all our combat systems, including our weapons.

If I could talk some about the LMRS, which is the mine-finding system that I sponsor and pay attention to, I think this is truly going to be the first autonomous vehicle that will go off and do 40-hour missions and be able to pass its data to the net, if you will, the satellites. You will be able to reprogram it.

The sonar system that will be used to find mines is the LMRS precision underwater mapper (LPUMA) system, which is a high frequency, high resolution sonar system that we have tested at sea, most recently on the U.S.S. *Scranton.* We have had very good results with this. We are much further with the computer power we have to look for mine-like objects. This, if you will, is an underwater mapping system that has the resolution to be able to navigate and relocate mines. You would take this system and go survey areas. Particularly I would like to think of it that one of the missions of an SSGN with its payloads, it would be able to take a number of these vehicles to sea, survey an area. Then say you come back in a number of months and you want to use it for actual combat operations, you could survey it again and have the technology to take the difference, using a computer to see what was there before and what has changed and be able to figure out where the mines are so you could avoid them.

On the weapons side of the systems, clearly a slow submarine or a submarine on the bottom is a very difficult target in the littoral. That is where we have made significant advances in the ADCAP Mod 5 and 6, which is more quiet and has more advanced sonar. But the real key will be the development of the CBASS torpedo, which will have a broad-band sonar to be able to operate successfully much better against a low doppler, a low, slow-moving target in the littoral. But that is clearly the most difficult challenge for a heavyweight torpedo to take out that type of target.

As far as working with the battle group, as I mentioned, with our ability, submarines have always been considered disadvantaged communicators. We never really had the bandwidth or the ability to communicate with the battle group. As I mentioned with the *Providence* in her operations off Afghanistan, we really are not considered a disadvantaged user anymore. With the high data rate antenna, we are able to communicate on a par with the remainder of our surface forces.

So I look at this as it is a significant challenge. We worry mostly, again, about the mine threat and also for the slow diesel submarine, because we are all about access. We have been making significant progress and the programs that we have in place are the right ones and funded correctly.

Senator SESSIONS. As we focus this hearing to some degree on funding and making sure we have the kind of equipment and readiness that we desire, are you sufficiently funded to outfit your submarines with the technologies that have proven effective at this time?

Admiral SULLIVAN. Sir, of course the answer is a bit open. You could always use more money, but I will use the ARCI as the best example. That system costs about one-thirtieth of the cost of the legacy systems. It has the equivalent of about 140 times the capability of one given ship 5 years ago. With our present programs, the last ship to deploy without that system on board overseas, the last SSN, will be in the fall 2003.

So we have put a lot of money against our combat systems, systems that have proven to give us much greater capability. That is just one example, but we are pretty much on a good track, about as fast as we can.

Another one is of course periscopes and digital systems. We have put a lot of money against that to be able to operate in the littoral among a lot of ships, a lot of fishing ships, a lot of contact avoidance, and shallow water. So I feel good about where we are, sir.

Senator SESSIONS. Good. I think it is important that as we bring this new technology on. Oftentimes it is not that expensive to actually place it on vessels and other ships and vehicles, and we need to make sure we have that money.

Thank you, Mr. Chairman. I will submit some additional questions for the record.

Senator KENNEDY. Senator McCain.

Senator MCCAIN. Thank you, Mr. Chairman.

I just would like to ask Admiral McCabe a couple of questions. I know this has been a long hearing. Admiral McCabe, I understand there is a demonstration program in progress to provide contract in-flight refueling for Navy tactical aircraft. The Secretary of Defense in PBD–824 directed the Navy to conduct a pilot program for aerial refueling, including tanker aircraft.

Has the demonstration provided responsive tanking and would you provide us with a few details?

Admiral MCCABE. Senator, Omega Air is a commercial 707 reconfigured for tanking. It has been used primarily on the East Coast for fleet exercises to support tanking during those. We have used it for logistics flights nonstop from West to East Coast with some EA–6Bs and in fact used it to take the E–F over to the Singapore Air Show, to support that mission.

To date the study is supposed to conclude in December, with a report back to us on the business case and effectiveness and the cost data in the January-February time frame next year. But I can report that the fleet is very happy with the performance. They have met all their commitments and there have not been any problems.

Senator MCCAIN. I have been briefed that the cost per flight hour is half the cost of an Air Force tanker. Is that correct?

Admiral MCCABE. I do not have specific cost data or information myself yet, Senator. I can check on that.

Senator MCCAIN. What has been the feedback from the fleet users?

Admiral MCCABE. Very positive. In fact, my EA is a former air wing commander from the East Coast who had opportunity to use that with his air wing and he was very positive about it.

Senator MCCAIN. What would it require to, for example, provide the required refueling capability throughout the Navy?

Admiral MCCABE. Well, we have a different problem in terms of the naval approach in tanking. We have used contract services for jamming, for fleet exercises. We use range clearance contract services. So close to the continental U.S. we have a decidedly different approach than we do on deployment, where we generally will use tanking. One of the reasons we like the E–F is it brings back A–6-level mission tanking and maxi-tankers. So we tend to tank carrier-based unless there is a joint asset from the Air Force available.

Senator MCCAIN. Would you provide for the record, please, the cost per hour of this contracting out of refueling so that we can compare it both with the Navy cost when the Navy is providing these services and the Air Force?

Admiral MCCABE. I would be happy to do that, Senator.

[The information referred to follows:]

The current study is scheduled to continue throughout this year, concluding in December. The findings will be published early in 2003.

The cost of the commercial. tanker is relative to a United States Air Force tanker. The dry cost (no fuel) is $6,145 per flight hour for the Omega Air 707 versus $13,035 (with $2,125 of indirect support costs included) per flight hour for the KC–135. Additional per diem and travel costs for both are approximately equal while fuel consumption is 1,500 gallons per flight hour for the KC–135 (with its most efficient engine) and 2,000 gallons per flight hour for the Omega Air 707. An informal study of Navy organic aircraft carrier tanker support costs provided by the S–3 Viking aircraft reveals a rough estimate of cost per flight hour to be approximately $12,627. The basis for cost comparison is difficult to fully rationalize due to the different missions and profiles of the S–3 when measured against tanker aircraft missions and profiles.

To date, Omega Air has flown 90 tanking missions providing 1,056 aircraft with 3.5 million pounds of fuel. They have met 100 percent of their scheduled events including east coast fleet exercises, JTFEX, COMPTUEX, Carrier qualification support, airwing repositioning cross-country, and escorting two F/A–18E/F aircraft from the United States to Singapore. All indications and reports from the fleet users are that they are satisfied with the performance of Omega Air.

As I have mentioned, this study is incomplete as yet and the numbers and dollar figures provided are subject to change when the final report is issued. However, at this time this appears to be a very positive experiment with potential for the fleet.

Senator MCCAIN. I thank you.

I thank you, Mr. Chairman. I thank the witnesses.

Senator KENNEDY. We want to thank all of you. We are very grateful for your presence and your presentation. We will look forward to working with you.

The subcommittee is adjourned.

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR EDWARD M. KENNEDY

LHA REPLACEMENT PROGRAM

1. Senator KENNEDY. General Whitlow, 2 years ago at the request of the Department of the Navy, Congress provided $25 million and directed the Navy to conduct an AoA for replacing the aging *Tarawa*-class amphibious assault ships (LHA–1). You state in your written testimony that you expect to know the results on the AoA in June 2002, and yet the DOD budget proposal contains $10 million for advance procurement of LHD–9. Does this funding request prejudge the outcome of the AoA?

General WHITLOW. No. The results of the LHA(R) AoA are not predetermined. The preferred alternative may or may not be based on the LHD–8. The LHA(R) AoA is

ongoing and will report out in summer 2002. Alternatives being considered include: repeat LHD–8 with evolutionary modifications, modified LHD–8 upgraded to enhance the ability to operate the larger and/or heavier new generation amphibious systems, and new ship designs spanning a wide range in size and capability. Based on the analysis presented in the AoA, the Navy will determine the optimal alternative for the LHA(R) as part of the LHA(R) program. The $10 million in the fiscal year 2003 budget request allows the Navy to begin refining the AoA selected alternative's detailed capabilities/characteristics and other developmental work.

2. Senator KENNEDY. General Whitlow, have you any insight into the findings of the AoA?

General WHITLOW. At this time I do not have any details beyond those mentioned above. But I can share my full confidence that the process will yield a range of alternatives from which the Navy and Marine Corps leadership can select the preferred solution that will best meet the needs of the Navy and Marine Corps current and future requirements.

P–3 MODERNIZATION

3. Senator KENNEDY. Admiral McCabe, I believe that we need to address the question of the P–3 community force structure. The P–3 forces that operated in Kosovo acquitted themselves very well, and demonstrated the attractiveness of the anti-surface warfare improvement program, or AIP. Once again in Afghanistan, the P–3 AIP aircraft were star performers. Over the past decade, there does not appear to have been a substantial commitment to supporting the resources required to keep these aircraft forces modernized. Given how well these aircraft have performed in recent operations, why has the Navy chosen to buy only four P–3 AIP upgrade kits in the fiscal year 2003 budget?

Admiral MCCABE. In spite of the acknowledged effectiveness of the P–3C AIP in recent operations, competing priorities within naval aviation continue to preclude funding AIP at optimal rates. The four kits requested are viewed as representing the best balance attainable between requirements and affordability. Navy is however, continuing to examine funding options for this important capabilities upgrade. As an indication of the importance placed on this program, AIP requirements are included in the Chief of Naval Operations' Fiscal Year 2003 Unfunded Requirements List submitted on 20 February 2002.

MARINE CORPS HELICOPTER PROGRAM COST GROWTH

4. Senator KENNEDY. Admiral McCabe, we understand that the program to upgrade the Marine Corps' utility helicopter and attack helicopter fleets has been experiencing cost growth again this year. It is not clear whether this is just the engineering and manufacturing development (EMD) portion of the program, or whether this may translate into higher recurring procurement costs. This contractor is also one of the prime contractors for the V–22 program. Can you describe what is the extent of the cost and/or schedule problems in this program?

Admiral MCCABE. The program has experienced an increase in both EMD and production costs. The EMD cost growth of $256 million (TY$) represents approximately 16 percent of the total program cost growth ($161 million) and includes funding for 10 months of additional schedule, risk reduction for OPEVAL, and requisite support funding to match the revised schedule. The production cost growth of $1,361 million (TY$) represents approximately 84 percent of the total and is largely due to an update of the production estimate to reflect EMD actuals and updated pricing for the bill of materials.

5. Senator KENNEDY. Admiral McCabe, can you provide an assessment of what impact the delay in the V–22 program will have on the utility and attack helicopter upgrade program?

Admiral MCCABE. The delay in the V–22 program did impact the procurement of the AH–1Z/UH–1Y helicopters. However, the increased engineering and manufacturing development (EMD) effort on V–22 provided some offset to the reduction in V–22 aircraft quantities. The latest forward pricing rate agreement (FPRA) provided by Bell included adjustments supporting the current delay of the V–22 program. This FPRA was utilized to accurately adjust the H–1 cost estimate. The fiscal year 2003 budget has been adjusted consistent with the budgeted profile for V–22.

DD–963 WARFIGHTING CAPABILITY

6. Senator KENNEDY. Admiral Clark, Navy statements regarding early retirement of ships have tended to minimize the contribution of the DD–963. These destroyers have been providing a significant contribution to the Navy's ability to maintain the required number of Tomahawk missiles in theaters to support requirements of the theater commanders in chief under the Global Naval Force Presence Policy (GNFPP). In fact, I believe that several DD–963s just returned from Afghanistan operations having fired a number of Tomahawk missiles against priority targets.

Since there is no chance that the Navy will have additional Tomahawk missile carrying capability in the near-term, isn't this action going to complicate the Navy's ability to maintain the required number of Tomahawk missiles in theaters to support requirements of the theater commanders in chief under the GNFPP?

Admiral CLARK. The Navy will be able to maintain requisite quantities of Tomahawk missiles in theater to support the requirements of the theater commanders in chief under the GNFPP, given the current DD–963 decommissioning schedule and the potential for further acceleration of DD–963 decommissionings. The Navy is continually commissioning new DDG–51 Class destroyers through the FYDP. These ships have launcher capacities of 96 Tomahawk-capable, vertical launch cells, as opposed to the 61-cell capacity of the DD–963 Class ships. The current DD–963 program of record decommissions assets at a rate of six ships per year. The last ship departs service in 2006 leaving the Navy with a loss of 1,159 launcher cells. The current DDG–51 program of record commissions ships in fiscal year 2003, three in fiscal year 2004, four in fiscal year 2005, and two in fiscal year 2006, for a gain of 1,344 launcher cells by the end of 2006. This schedule produces a yearly net increase of launcher cells, and an overall net gain of 185 Tomahawk-capable, vertical launch cells by the end of DD–963 class service.

QUESTIONS SUBMITTED BY SENATOR MARY L. LANDRIEU

LPD–17

7. Senator LANDRIEU. General Whitlow, in your prepared testimony, you go to great length to stress the need to increase our amphibious lift capabilities. You state that the Marine Corps will not reach the 2.5 MEB lift capability until the delivery of the 12th LPD–17. This is still .5 under the 3.0 MEB capability required to fully meet the threat of a major theater war. You comment that an acceleration of the LPD–17 program will immediately increase our warfighting capability. At what rate would the LPD–17 program have to be accelerated in order to achieve a discernable difference in our warfighting capability?

General WHITLOW. Increasing the LPD–17 production rate to the original President's budget 2001 rate of two per year (currently one per year fiscal year 2004 through fiscal year 2009 with two ships in fiscal year 2008) would allow earlier decommissioning of the LPD–4 class ships (five of which have already exceeded service life) and increase amphibious lift capabilities to the 2.5 MEB-assault echelon level by fiscal year 2012.

LANDING CRAFT AIR CUSHIONED

8. Senator LANDRIEU. General Whitlow, I am very pleased to see that the LCAC is manufactured in New Orleans. The LCAC is, in essence, the successor vehicle to the Higgins Boats, which made an important contribution to victory in World War II, and was also manufactured in New Orleans. Today the LCAC is the primary platform for high speed transport of troops and equipment. With an ability to reach over 70 percent of the Nation's coast lines, the LCAC is the key to executing expeditionary maneuver warfare. Currently, the President's budget calls for putting three LCACs through the SLEP. Is this enough to meet the Marine Corps' current needs, and, if not, how many more LCACs would have to go through the SLEP program in order for the Marine Corps' need to reach capacity?

General WHITLOW. The LCAC will continue to be a vital leg of our mobility triad providing high speed, over the horizon surface assault ship-to-shore movement of troops and equipment. The LCAC delivers the bulk of the rolling stock and combat equipment needed to generate the necessary rapid buildup of combat power ashore. The speed, range, and beach access afforded by the LCAC make it a key component in executing maneuver warfare from the sea. The LCAC SLEP program will extend the hull life of the craft to at least 30 years.

The fleet commanders have determined 74 active LCAC are required. The Navy will concentrate its resources on ensuring a 30 year life can be achieved as well as incorporating urgently needed communication and navigation upgrades. The optimal time to SLEP the craft is between 18 to 20 years of service life. Congress has authorized and appropriated four LCAC SLEPs through fiscal year 2002. The fiscal year 2003 request is for SLEPs number five to seven. To SLEP the craft at the 18 to 20 years of service life point requires averaging between four to six SLEPs per year over the next 13 years. The minimum factory economic order quantity rate is four SLEP per year. Thus, an LCAC SLEP program that builds up to a steady state of six craft per year is both efficient and optimum for supporting the fleet commanders' needs.

PERSONNEL GEAR

9. Senator LANDRIEU. General Whitlow, most of our comments today have focused on the larger systems that are necessary for conducting war, but I think it is important that we focus on the personnel gear that the individual sailor and marine is issued. In the Emerging Threats and Capabilities Subcommittee, we have heard testimony from Special Operations Command on integrating off-the-shelf technology into our forces. There have been news reports out of Afghanistan (*Marine Corps Times,* February 18, 2002) that some of the new gear that the Marine Corps has developed recently simply did not stand up to the harsh conditions of the Afghan environment. Specifically, the new MOLLE packs that have been put into the fleet were reported to fall apart in the field. Is the expeditionary warfare Division aware of this problem and is it taking the proper steps to ensure that our marines are adequately equipped once they hit the ground?

General WHITLOW. As a marine, I am concerned that the equipment we develop, procure, and issue to our marines and sailors adequately meets the demands of the mission and environment. As the Director of the expeditionary warfare Division, I do not have influence or involvement with the development, selection, or procurement of basic issue and field equipment for our marines. However, I understand that Marine Corps Systems Command is working in conjunction with all intra-Marine Corps agencies to ensure all current and future equipment adequately addresses our marines' requirements to accomplish the mission in any assigned area or environment.

10. Senator LANDRIEU. General Whitlow, are you looking at acquiring off-the-shelf technology to answer these problems?

General WHITLOW. I am certain that these issues are currently being addressed by Marine Corps Systems Command.

QUESTIONS SUBMITTED BY SENATOR JEFF SESSIONS

NAVAL GUN FIRE SUPPORT FOR MARINES

11. Senator SESSIONS. General Whitlow and Admiral Balisle, the Marine Corps requirements for gun fire support were clearly stated in a 1999 Marine Corps Development Center letter from General Rhodes to the Chief of Naval Operations. Admiral Balisle, your written statement is unclear regarding the Navy's ability to meet the Marine Corps requirements for fire support. Do you concur with previous Marine Corps witnesses who testified that the 155 advanced gun system is the *only* system that will meet all Marine Corps fire support requirements?

General WHITLOW and Admiral BALISLE. The Marine Corps position on naval surface fire support (NSFS) requirements was recently updated in a March 2002 letter signed by Lt. Gen. Hanlon, Commanding General of Marine Corps Combat Development Command (MCCDC). Navy concurs with Marine Corps NSFS requirements.

The development program for the 155mm advanced gun system (AGS) and munitions is focused on meeting Marine Corps NSFS gun requirements. However, Marine Corps NSFS requirements also call for other NSFS systems (missiles, rockets, other) with ranges objectively to 262nm in the 2010–2019 timeframe. In the near term, Navy is meeting the sea-based portion of the naval fires family of systems with the deployment of the 5″/62 gun on DDGs and CGs, the introduction of the extended range guided munition in fiscal year 2005, and the introduction of tactical Tomahawk in fiscal year 2004. To meet future requirements, Navy will introduce the advanced gun system (AGS) and long-range land attack projectile in DD(X) while also considering options for a follow on ALAM.

12. Senator SESSIONS. Admiral Balisle, your written testimony states that the 5″/62-caliber gun and the extended range guides munitions "are expected to meet USMC requirements in accuracy, lethality, and responsibility." Are there Marine Corps requirements that the 5″/62-caliber gun and the extended range guides munitions will not meet?

Admiral BALISLE. The combination of the 5″/62-caliber gun (presently being deployed on new construction DDGs and programmed for backfit on CGs as part of cruiser conversion) and the ERGM, (IOC fiscal year 2005) are Navy's programs to address Marine Corps near term and mid-term naval surface fire support (NSFS) gun requirements. Marine Corps NSFS requirements include responsiveness, range, accuracy, and lethality. Marine Corps gun range requirements are provided in a table below. 5″/62 and ERGM meet Marine Corps NSFS requirements for responsiveness, accuracy, and lethality. They will be deployed to meet near and mid term threshold range requirements of 41nm and 63nm respectively. The advanced gun system (AGS) and munitions, planned for installation in DD(X), will focus on meeting all Marine Corps NSFS gun requirements.

			Near-term (fiscal year 2004–2005)	Mid-term (fiscal year 2006–2009)	Far-term (fiscal year 2010–2019)
Range	Naval Guns	Threshold Objective	41nm 63nm	63nm 97nm	97nm Limits of Technology

NAVAL COASTAL WARFARE FORCE

13. Senator SESSIONS. General Whitlow, your written testimony points out there are "critical readiness shortfalls, primarily in equipment deficiencies" in the naval coastal warfare forces tasked with homeland defense. What are the shortfalls and how long will reservists continue to man and manage these efforts?

General WHITLOW. The naval coastal warfare force resides in the Reserve component and is comprised of three types of commissioned, hardware-equipped units that normally operate together as the NCW force package. These units are: (1) harbor defense command units (HDCU) that conduct command and control, communications, computers, and intelligence (C^4I) operations using the Reserve-mobile ashore support terminal (RMAST) system; (2) mobile inshore undersea warfare units (MIUWU) that conduct littoral surface and subsurface surveillance operations using the radar-sonar surveillance center (RSSC) system with mobile sensor platforms (MSPs); and (3) inshore boat units (IBU) that conduct harbor patrol and interdiction operations using small boats. Units of each type in the existing force structure lack major equipment sets as indicated below.

The inventory objective for NCW major equipment to complete initial outfitting of all units is as follows:

- 22 radar-sonar surveillance centers (RSSC V.4) systems
- 44 mobile sensor platforms (MSP) systems (2 per unit)
- 11 Reserve mobile ashore support terminal (RMAST) systems (84)
- IBU small boats (six boats per unit).

The inventory at the end of fiscal year 2003 is projected as follows:

- 5 radar-sonar surveillance center (RSSC V.4) systems
- 17 radar-sonar surveillance center (RSSC V.3) systems (*)
- 28 mobile sensor platform (MSP) systems
- 6 reserve mobile ashore support terminal (RMAST) systems
- 64 IBU small boats.

*Note: RSSC V.3 van systems require upgrade to V.4 configuration (HMMWV mounted)

The balance of the inventory objective to be completed by the end of the FYDP is as follows:

- 17 radar-sonar surveillance centers (RSSC V.4) systems
- 16 mobile sensor platforms (MSP) systems
- 5 reserve mobile ashore support terminal (RMAST) systems
- 16 IBU small boats.

Navy has funded and is currently in the process of equipping and manning a new active capability within the naval coastal warfare organization called the mobile security force. Once this new Active component is fully stood up and ready for deployment Reserve NCW units will no longer *exclusively* fill the homeland defense role but will continue to assist in the naval coastal warfare mission.

14. Senator SESSIONS. General Whitlow, have the equipment shortfalls been addressed either by the supplemental for fiscal year 2002 or this budget request?

General WHITLOW. Part of the equipment shortfalls identified above have been addressed by the fiscal year 2002 supplemental and the fiscal year 2003 budget request. Specifically, $14.4 million in supplemental Defense Emergency Response Fund (DERF) funds have been allocated to the NCW program. These funds are being used to procure 36 small boats to outfit inshore boat units (IBU) to the six-boat standard required for sustained port security operations. Delivery of these boats should begin in first quarter fiscal year 2003. Funding for an additional four boats is included in the fiscal year 2003 budget request. Additional funding will be needed for 16 boats to complete outfitting of all 14 IBU units. Funding for procurement of one additional mobile sensor platform (MSP) is also included in the fiscal year 2003 budget request. Funding for an additional 15 MSPs will be needed to complete outfitting of all 22 MIUW units. No funding is available at present to address shortfalls in RMAST systems or to provide for conversion of existing RSSC V.3 van systems to RSSC V.4 HMMWV configured systems. These shortfalls will be addressed in future budget requests.

COMMON REQUIREMENTS AND EQUIPMENT

15. Senator SESSIONS. General Whitlow, Admiral Balisle, Admiral Sullivan, and Admiral McCabe, your divisions have requirements for unmanned undersea vehicles and aircraft-towed unmanned vehicles. What is done within your organizations and the corresponding field activities to ensure that the taxpayer is not paying more than once for development of common subsystems for unmanned vehicles and how do you share information with the unmanned vehicle efforts from other services?

General WHITLOW, Admiral BALISLE, Admiral SULLIVAN, and Admiral MCCABE. N70, the Warfare Integration and Assessment Division, has responsibility for assuring coordination of unmanned vehicle activities across all the Chief of Naval Operation divisions. This includes N75, N76, N77 and N78. N70 oversight facilitates the sharing of program and technology information in unmanned systems. A key example of this is the tactical control system (TCS). TCS is a joint Service program sponsored by N78 to provide a common software architecture for unmanned aerial vehicle (UAV) ground control stations (GCSs). TCS, when fully implemented, will allow UAV GCS personnel to operate and share data from any of the Services' UAVs. This same architecture is now being considered for application to naval unmanned surface vehicles (USVs) and UUVs.

N78, the Air Warfare Division, is responsible for Navy UAVs and aircraft-towed unmanned vehicles, which include decoys and a variety of sensors used in undersea warfare. UAVs are vehicles that are controlled from the ground and fly under their own power and are different from towed decoys and sensors.

Based on a memorandum of agreement last year, N75, the expeditionary warfare Division, transferred all their concerns and responsibilities for UAV platforms to N78. Warfighters in N75 mission areas will be users of common fleet UAV assets. N75 retains the responsibility to set naval expeditionary warfare requirements that can be fulfilled by N78-developed UAVs.

N75's requirements may also be met through the use of unmanned surface or undersea vehicles. In very shallow water, N75 develops programs for mission requirements in mine countermeasures (MCM) and amphibious assault. N75 is developing man-portable very shallow water (VSW) UUVs for EOD mission areas in MCM.

N75 is the sponsor for mine warfare systems in the fleet's dedicated and organic MCM forces, including the semi-submersible remote minehunting system (RMS), deployed by surface ships. As an example of system interoperability, the RMS will tow the same AQS–20(X) sonar system that is being developed for the MH–53E and MH–60S helicopters. N75 coordinates transition plans for emerging platforms and payloads through membership in the Organic Mine Countermeasures Future Naval Capabilities Integrated Product Team. N75 develops the annual U.S. Naval Mine Countermeasures Certification Plan, annually forwarded by the Secretary of Defense to the Congress.

Although N76, the Surface Warfare Division, has requirements for unmanned vehicles in future ships, the division has no unmanned vehicle programs of its own. N76 intends to leverage the development of unmanned vehicles from existing programs in the Navy and other services.

N77, the Submarine Warfare Division, is responsible for unmanned undersea vehicles. N77's UUV efforts include the long-term mine reconnaissance system (LMRS) and the mission reconfigurable UUV (MRUUV), both of which are unique systems

satisfying specific requirements. There are no other efforts among the Warfare Divisions that duplicate these systems.

There are a number of other venues that the Navy and the other Services use to share information, collaborate on joint efforts, and avoid duplication of efforts in unmanned systems. DOD/Service laboratories, System Commands, and other field activities participate in all these venues. These include:

- The Autonomous Operations (AO) Future Naval Capabilities (FNC) Integrated Product Team (IPT) includes membership from N76, N77, N78, the Marine Corps, and the Office of Naval Research (ONR). The AO IPT provides senior level oversight and direction to assure that exploratory and advanced development investments made by ONR support warfighter needs. Field activities such as the Naval Research Laboratory, Naval Air Systems Command, Naval Sea Systems Command, Marine Corps System Command, and Space and Naval Warfare Systems Command participate in the IPT and manage and perform the work efforts. In addition to air, water surface, and underwater unmanned vehicle systems, the IPT also addresses unmanned ground vehicles (UGVs) in support of the Marine Corps. The focus of the AO IPT is development of autonomous system architecture and software, sensors, and advanced propulsion systems that have applicability to all unmanned systems. Unmanned systems are also addressed in other FNC IPTs including time critical strike and total ownership costs.
- In April 2000, the Assistant Secretary of the Navy for Research, Development, and Acquisition and the Vice Chief of Naval Operations (VCNO) designated N77 as the primary point of contact for unmanned undersea vehicles for the purpose of developing synergy for the Navy's various UUV programs. N77 is the chair of the UUV Executive Steering Group (UUV ESG) that meets at least annually to provide a forum for coordination of UUV issues within the Department of the Navy. N75, N76 and N78 are charter members of the UUV ESG.
- At the Office of Secretary of Defense (OSD) level, the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)) provides oversight management of Service UAV and UGV programs to promote synergies in areas of common interest and avoid duplication of efforts. In particular, USD(AT&L) chairs the UAV Planning Task Force that is chartered as the focal point to assure that UAV programs proceed in a coordinated manner. The Planning Task Force has initiated a number of IPTs addressing: communications; sensors; small UAVs; airspace operations; tasking, processing, exploitation, and dissemination; platforms; weaponization; technology, and standards/formats. All the Services, the Joint Staff, the Service Laboratories, and Defense Agencies such as the Defense Advanced Research Projects Agency (DARPA), the National Security Agency (NSA), and the National Imagery and Mapping Agency (NIMA) participate in the IPTs. IPT results will be incorporated into the next version of the OSD UAV Roadmap that is expected to be published by the end of calendar year 2002.
- UAV matters are also reviewed by the Joint Staff-sponsored UAV Special Studies Group (SSG). The UAV SSG is a two-star level group with representatives from all the Services requirements organizations that meets on an as-needed basis to address UAV requirements, areas of common interest, and issues requiring resolution.
- All unmanned system requirements having joint service interest or potential interest are reviewed and validated the Joint Requirements Oversight Council (JROC). The JROC is four-star level body consisting of the vice/assistant chiefs of all the Services.
- Lastly, in order to share technology and program information and ideas with the unmanned systems industrial base, the Navy sends representatives to public meetings of the Association of Unmanned Vehicle Systems International (AUVSI). AUVSI sponsors symposia and meetings that review unmanned system programs and technology. Many of these symposia and meetings are attended by over 1,000 government and industry participants.

BATTLE GROUP COMBAT SYSTEMS TESTING

16. Senator SESSIONS. Admiral Balisle, it is not clear that the pre-deployment battle group integrated combat system testing and resulting correction plans are achievable given the expected compressed inter-deployment cycles. What is the importance of integrated combat systems testing through the Distributed Engineering

Plant, and what is the status of that testing for battle groups deploying in the next 18 months?

Admiral BALISLE. Importance of Testing in the Distributed Engineering Plant: In May 1998, the Chief of Naval Operations (CNO) assigned the Commander, Naval Sea Systems Command (COMNAVSEASYSCOM) responsibility for addressing interoperability issues within the Systems Commands (SYSCOMs) and the Program Executive Offices (PEOs). The CNO also tasked COMNAVSEASYSCOM with coordinating the resolution of interoperability issues with the fleet. Specifically, COMNAVSEASYSCOM was tasked to develop policy and architecture for battle force warfare systems engineering, implement a common warfare systems engineering process, and provide top level direction for fielding and support of balanced combat systems for ships and submarines. COMNAVSEA has responded with processes and tools that include:

- The deployment minus 30 months battle force certification process (D–30 Process)—a disciplined process to maintain configuration management for deploying battle forces
- The distributed engineering plant (DEP)—a nation-wide, shore-based test network designed to test interoperability at the battle force level
- Battle force interoperability test (BFIT)—testing which is executed on the DEP in an effort to identify and characterize interoperability problems within the deploying battle force
- Battle force interoperability requirements (BFIR)—a metric used to measure and predict the total force performance and interoperability
- BFIT Analysis Review Panel (BARP)—responsible for analyzing BFIT results, and for the direct reporting of trouble reports, workarounds, capabilities/limitations, and BFIR performance metrics to each deploying battle force staff
- Battle force capabilities and limitations (CAPS/LIMS) document—a document which captures the results of BFIT testing, supports the optimizing of system configurations and supports warfighter training, based on realized capabilities of systems and computer programs available within the BG/ARG/MEF
- Operational Advisory Group (OAG)—the senior military and civilian stewards of the Force interoperability problem resolution process.

BFIT certification of deploying battle group configurations is accomplished through the utilization of the Navy's distributed engineering plant (DEP). The plant provides a shore-based operational mock-up of combat systems located at multiple Navy land-based sites connects them via asynchronous transfer mode (ATM) networking technology. The DEP provides the only opportunity for comprehensive and repeatable interoperability testing of combat system and command, control, communications, and intelligence (C^4I) items prior to shipboard delivery for operational use in surface combatant platforms and battle group units. Since its inception, the DEP, in concert with these force systems engineering tools, has proven indispensable for the development of interoperable and effective naval forces. Interoperability and capability improvements to date have been noticeable to the operators as well as quantifiable via the BFIR metrics. Translated into operational terms, Navy can quantify, with the DEP, battle space "bought back" through implementation of interoperability fixes. Highly favorable fleet feedback has been continuous and documented in many forms.

Status of Testing in next 18 Months due to Accelerated Deployments: The DEP and BFIT testing process was established prior to the implementation of CINCLANTFLT/CINCPACFLT Instruction 4720.3A which instituted the D–30 process. The BFIT process, established against an accelerated pace of deployments, stands ready to handle the dynamics of the wartime tempo and has proven its ability to adjust to any level of change. The DEP teams have dealt with changing dynamics of battle force configurations since the first BFIT. Since the events of September 11, 2001, the DEP teams have successfully dealt with perturbations in operating tempo of the following magnitude:

- Major battle force composition changes 2 weeks prior to DEP testing
- Multiple battle force platform configuration changes
- Three battle groups tested and reported in one BFIT—included were the U.S.S. *Kitty Hawk* (CV–64) forward deployed naval force, and the *Lincoln* and *George Washington* battle groups (fall fiscal year 2001)
- BFIT Regression test of the U.S.S. *John F. Kennedy* (CV–67) battle group (December fiscal year 2001)
- Two battle groups tested and reported in one BFIT (Spring fiscal year 2002)

- Numerous engineering and developmental events conducted/supported
- Preparation for U.S.S. *Nimitz* (CVN–68) BFIT in late summer.

The upcoming battle force deployment schedules are no more stressful than the schedule already encountered. Given the processes, efficiencies and capabilities established by the DEP teams and the associated force systems engineering teams over the past 4 years, the outlook for the next 18 months of battle force deployments is certainly achievable given sustained funding of the COMNAVSEA programs. COMNAVSEA currently has an unfunded requirement on the fiscal year 2002 supplemental list for its efforts in response to the increased wartime posture and tempo.

U.S.S. *COLE* DAMAGE CONTROL LESSON LEARNED

17. Senator SESSIONS. Admiral Balisle, the Senate report accompanying our bill last year directed the Secretary of the Navy to provide: (1) battery powered, long distance emergency communications capability to all units before they deploy overseas; and (2) self-contained emergency breathing apparatus to all vessels during their next scheduled selected restricted availability. Also, recent feedback from the an officer in the operating fleet indicates there have been no U.S.S. *Cole* damage control lessons learned promulgated to ships. Has the Navy complied with the Senate's direction on providing ships the communications and emergency breathing equipment?

Admiral BALISLE. Prior to U.S.S. *Cole,* OPNAV N6 procured 97 manpack-type UHF SATCOM or line-of-sight (LOS) capable battery powered radio units (AN/PSC–5 produced by Raytheon and PRC–117F produced by Harris) to augment the fleets communications ability. These units were provided to the fleet CINCs for distribution as appropriate. Following U.S.S. *Cole*, an additional 200 Iridium satellite-based telephones were acquired and provided to the fleet CINCs for distribution as appropriate.

Significant funding ($85 million fiscal year 2003 to fiscal year 2007) was added in PR03 to accelerate installation of SCBAs on USN ships. Additionally, $4 million of fiscal year 2002 Defense Emergency Response Fund (DERF) funds were provided to further accelerate this *Cole* lessons learned item. This funding will allow all USN ships to be outfitted with SCBAs by fiscal year 2008. The current funding profile will not support installing SCBAs in every ship during its next SRA.

18. Senator SESSIONS. Admiral Balisle, what is the status of promulgating damage control lessons learned including equipment to ships?

Admiral BALISLE. *Cole* survivability lessons learned were promulgated via secret naval message in July 2001 (DTG 061824Z July 2001). Additionally, PEO (Theater Surface Combatants) provided a detailed briefing to the following: NAVSEA, SURFLANT, SURFPAC, DESRON 22, CINCLANTFLT N43, SWOS, SPAWAR, selected congressional staffers, LANTFLT Type desk DC, and Afloat Training Group (Norfolk, Mayport, San Diego).

As a result of *Cole* lessons learned, several items were proposed to either increase the ships outfitting or to provide a new capability in order to increase crew safety and ship survivability. The Navy was provided $6 million of fiscal year 2002 DERF for the procurement and distribution of this equipment. The table below lists the items being procured and the planned delivery date. These items will be delivered to 122 ships in two separate "kitted" shipments with all material being delivered by the end of fiscal year 2002.

Item	Expected Delivery to Ships
1. Leather Palm Gloves	June 2002
2. Forcible Entry Tool	June 2002
3. Web Belt (Tool belt)	June 2002
4. P100 Pump Adapter	June 2002
5. Reflective Marker Tape	June 2002
6. Digital Camera	June 2002
7. Non-Skid for Escape Trunk	August 2002
8. Damage Control Light Streamers	August 2002
9. Diesel Generator	August 2002
10. Additional Emergency Egress Breathing Devices (EEBD)	August 2002

SURFACE SHIP SELF-DEFENSE/ADVANCE INTEGRATED ELECTRONIC WARFARE SYSTEM

19. Senator SESSIONS. Admiral Balisle, what is your assessment of the present electronic warfare ship self-defense capabilities and programs, and have you adjusted any programs recently?

Admiral BALISLE. Although aging, our EW self-defense capability is sufficient to counter today's threat, which is becoming smaller, faster, lower, and more maneuverable. The continued installation of the Nulka active off-board decoy on our CGs/DDGs ensures our deploying battle groups have an effective measure of self-defense against today's deployed threats. Upgrades to the Nulka decoy payload will ensure we remain ahead of the threat. We will additionally begin installations on FFG and LPD–17 class ships. With respect to program adjustments, the Navy has regretfully decided to cancel the AN/SLY–2 advanced integrated electronic warfare system (AIEWS) program because of program instability, cost growth, and development delays that were adversely impacting the Navy's ability to field urgently needed surface EW improvements to the fleet. The AIEWS program provided "leading edge" technology development, yielding an exceptional array of technologies with significant promise to improve surface electronic warfare capabilities in legacy and future systems. The Navy is instituting a block upgrade improvement approach for surface ship electronic warfare (EW) that will provide incremental upgrades to the fleet, using the current AN/SLQ–32 (V) system as the starting framework. This strategy will facilitate a greater number of ships receiving much needed EW improvements in the near-term, while additional improvements will continue to be competitively developed and fielded as both technological advances and budgetary resources allow. This will consist of block capability upgrades pacing the threat and developing an advanced EW capability eventually replacing the AN/SLQ–32(V) system. Preliminary planning is for five overlapping blocks. Block 1 will provide improved human/computer interface (Q–70 consoles) and a new computer for better processing. Block 1A will include specific emitter identification (SEI) capability. Block 2 will include a new receiver package that includes a special signal receiver and new computer language. Blocks 3 and 4 will include receiver replacements and an advanced RF and IR electronic attack subsystem with advanced offboard countermeasures. This approach will feature an open system architecture allowing the insertion of new technologies and capabilities without major system redesign.

FIRE SUPPORT WEAPONS REPLENISHMENT AT SEA

20. Senator SESSIONS. General Whitlow and Admiral Balisle, the Navy and Marine Corps have not previously agreed on the requirement to replenish fire support weapons at sea. The 1999 Marine Corps Development Center letter from General Rhodes to the Chief of Naval Operations described the Marine Corps requirements for naval surface fire support as follows: 63 nautical mile range, 2.5 minute response time, "high volume suppressive and neutralizing fire . . . there must be a capability to provide inexpensive munitions that satisfy the high volume of fire requirement," and the "Marine Corps requires that all surface fire support weapons be easily sustainable via underway replenishment" at sea. The Navy's position was never clear regarding the replenishment capability for fire support missiles. What is the current status of at sea replenishment requirements for fire support weapons?

General WHITLOW and Admiral BALISLE. The ability to sustain surface fire support systems via underway replenishment is an important warfighting requirement. The Navy is very capable of at sea replenishment of the naval gun ordnance needed to support the naval surface fires mission, which includes support of marines ashore.

There are no research and development investments planned to fund improvements to the replenishment systems currently fielded to support UNREP of VLS celled missiles. There is, however, an ongoing future naval capability (FNC) initiative to develop a heavier underway replenishment (UNREP) lift capability from the existing 5,700-pound system to 12,000-pound capability. Navy has also identified transition funding to bring this capability into the logistics force ships, starting with a backfit to the *Lewis & Clark* (T–AKE)-class combat cargo and ammunition ship in the fiscal year 2008 to fiscal year 2009 timeframe. To optimize NSFS deployment, available near term funding is being directed toward increasing ordnance inventory and fielding NSFS systems. Development of an UNREP capability for NSFS missiles continues to be assessed in terms of warfighting benefit and affordability.

QUESTIONS SUBMITTED BY SENATOR JOHN MCCAIN

T–5 TANKERS

21. Senator MCCAIN. Admiral Clark and Admiral Balisle, on February 8, Admiral Church, USN, delivered to Congress the Department of the Navy's "Fiscal Year 2003 Budget Overview." On page 18 of the Navy's budget brief is a slide called "Promote Better Business Practices, Managing the Department in a Business-like Manner." I noticed a bullet that states "T–5 Tanker Buyout." Will you please tell why the Navy has decided in its fiscal year 2003 budget to buy the T–5 Tankers rather than to continue to lease them as was the plan several years ago?

Admiral CLARK and Admiral BALISLE. The T–5 tankers were leased in the early eighties rather than purchased because of the budgetary circumstances that existed at the time. When the ships were leased, the Navy negotiated for favorable purchase options that, conditions permitting, could be exercised at the appropriate time. Those conditions exist and that time is now. We have a continuing need for these vessels beyond their lease terms, which end in 2005 and 2006. If we let our options expire, we will end up chartering (leasing) higher cost replacement tankers.

22. Senator MCCAIN. Admiral Clark and Admiral Balisle, so let me understand you—"it is cheaper to buy the tankers and MPS (maritime pre-positioning ships) outright than it is to continue to pay the lease"—is that correct? I think I agree with the Secretary of the Navy and OMB Director Mitch Daniels who blames free-wheeling leases for outlandish cost overruns in government programs in the past.

Admiral CLARK and Admiral BALISLE. Yes. Exercising our lease options to purchase will provide significant cost savings. It is cheaper to purchase these ships than to continue leasing. However, purchase requires a large expenditure in the year that the ships are purchased. Due to the nature of the Navy's T–5 purchase options, we get the greatest overall savings if we buy the ships and end their leases two years before the conclusion of the present 20 year terms—when that is coupled with a continued use of the ships. The same is true for the MPS, but their lease terms are 25 years and we estimate that their optimum buyout point will be in fiscal year 2007. The key is to purchase the ships when they are most affordable during the lease cycle in order realize the optimal future stream of savings.

LHD–9

23. Senator MCCAIN. General Whitlow and Admiral Balisle, in a January 28, 2002 article, "Responding to Lott, DOD Starts Funding LHD–9 And One More DDG–51," by Chris Castelli in the publication *Inside the Navy,* the article states:

> "At the urging of Senate Minority Leader Trent Lott (Republican—Mississippi), the Pentagon has made last minute adjustments to the Navy's shipbuilding plan in the Bush administration's fiscal year 2003 budget. The Pentagon put $74 million more toward a third DDG–51 destroyer and allocated $10 million in advance procurement for a ninth amphibious ship LHD 9—that was not previously in the Navy's budget."

Is this true, yes or no?

General WHITLOW and Admiral BALISLE. The OSD Comptroller made two late changes to the Navy's fiscal year 2003 shipbuilding budget request by adding $74 million in advance procurement funding for a third DDG–51 destroyer in fiscal year 2004, and shifting $10 million for advance procurement funding for an fiscal year 2008 LHD–9. Any specific questions on the factors that precipitated the decision for these shifts should be referred to the OSD Comptroller.

LHA REPLACEMENT

24. Senator MCCAIN. General Whitlow and Admiral Balisle, can you provide the status of the AoA to replace the current LHA with an LHA (R)?

General WHITLOW and Admiral BALISLE. The LHA Replacement [LHA(R)] AoA is scheduled to complete in the summer of 2002. The AoA is evaluating several alternatives including a repeat LHD–8, a modified LHD–8, and entirely new ship designs.

25. Senator MCCAIN. General Whitlow and Admiral Balisle, are you also aware that the Comptroller in the Office of the Secretary of Defense deleted the funding for the study on the AoA cutting $16 million from the RDT&E effort for the LHA replacement?

General WHITLOW and Admiral BALISLE. The Department is aware of this situation. During the November 2001 review of the Navy's fiscal year 2003 budget request, the OSD Comptroller's Office deleted fiscal year 2003 and fiscal year 2004 research, development, test, and evaluation (RDT&E) funding for the LHA(R) program.

LHA(R) R&D funding throughout the FYDP was briefed to and approved by OSD (including the OSD Comptroller) at Milestone A as the minimum RDT&E funding necessary to support the least expensive LHA(R) AoA alternative—a repeat LHD–8. Since the AoA completes in fiscal year 2002, this fiscal year 2003–2004 RDT&E deletion does not directly impact the AoA study, the AoA final report or the Navy's ability to decide which LHA(R) alternative to pursue. However, the Department of the Navy will select a preferred alternative based on the results of the AoA and adjust RDT&E and SCN profiles as required to move forward.

26. Senator MCCAIN. General Whitlow and Admiral Balisle, does the $10 million in advance procurement for LHA–9 that was added by the OSD Comptroller according to the Castelli article predetermine the results of the AoA?

General WHITLOW and Admiral BALISLE. No. The results of the LHA(R) AoA are not predetermined. The LHA replacement analysis of alternatives is ongoing and will report out in summer 2002. Alternatives being considered include: repeat LHD–8 with evolutionary modifications, modified LHD–8 upgraded to enhance the ability to operate the larger and/or heavier new generation amphibious systems, and new ship designs spanning a wide range in size and capability. Based on the analysis presented in the AoA, the Navy will determine the optimal alternative for the LHA replacement as part of the LHA(R) program. The preferred alternative may or may not be based on the LHD–8. The $10 million in the fiscal year 2003 budget request allows the Navy to begin refining the AoA selected alternative's detailed capabilities/characteristics and other developmental work.

27. Senator MCCAIN. General Whitlow and Admiral Balisle, you know that I have traveled to Afghanistan with other members of this committee. While there, I heard from several Navy and Marine Corps officers that the number one concern for replacing the LHA is safety because of a stability problem or high center of gravity issue, especially with deployed aircraft. Their concern was that even with some minor fixes with fuel compensation systems, the problem will be exacerbated when the service deploys larger aircraft, such as the Osprey (MV–22) and the Joint Strike Fighter (JSF), which are replacements for the CH–46 and AV–8B respectively. I am told that the MV–22 is twice the weight of the CH–46 and that the JSF is believed to be about twice the weight of the AV–8B. Does the LHD class have similar stability problems as the LHA class, and would you agree that the problem could be exacerbated with the planned future aircraft and vehicles envisioned for the Marine Corps?

General WHITLOW and Admiral BALISLE. The seven ships of the LHD class have improved stability characteristics over the LHA class and therefore do not experience weight and center of gravity issues to the same extent as the LHA. For example, LHD–7, commissioned in 2001, has greater than the required 1,000 long tons of service life weight growth allowance.

LHDs have the growth allowance to accommodate MV–22 and JSF with aggressive weight control measures and the fuel oil compensation ship alteration although LHDs have less vehicle storage space (square footage) than LHAs.

The Navy's five LHAs need to be replaced as soon as possible, as they are rapidly reaching the end of an already extended service life. The LHA(R) AoA was initiated to ensure that both Marine Corps and Navy 21st century requirements are addressed, including the issues you raise regarding the impact of heavier and larger aircraft/vehicles and overall amphibious force vehicle storage area. An LHD repeat is just one of several alternatives being considered in the LHA(R) AoA to meet requirements.

28. Senator MCCAIN. General Whitlow and Admiral Balisle, what growth percentages are currently planned for the LHD class of ships?

General WHITLOW and Admiral BALISLE. The CNO-specified minimum service life allowance for the LHD class at delivery from the shipyard is 1/2 foot for vertical center of gravity reserve and 1,000 long tons (about 2.5 percent) of displacement service life reserve. The requirement is documented in the LHD Class Top Level Requirements document.

29, 30. Senator MCCAIN. General Whitlow and Admiral Balisle, is the LHD a good replacement for the LHA class of ships, considering that the ship does not meet the

requirement in planned future vehicles and aircraft for the Marine Corps or our special operations community and considering the amphibious lift requirement of 2.5/3.0 MEB?

Because of the well deck inside the LHD, isn't the LHD available square footage less than the LHA?

General WHITLOW and Admiral BALISLE. The ongoing LHA(R) analysis of alternatives is addressing whether the LHD is a good replacement for the LHA class. Continuing to build LHDs, as well as ship design modifications to enhance the capability to operate the larger and heavier new generation amphibious systems are currently being examined as options. The analysis of alternatives is also investigating the optimum way to reach the fiscally constrained amphibious lift requirement of 2.5 Marine expeditionary brigades. The analysis of alternatives is expected to report out later this year and will present its conclusions at that time.

31. Senator MCCAIN. General Whitlow and Admiral Balisle, it seems to me that the LHD is not a very transformational program especially considering that it is the exact same hull of the current LHA class that is based on a 1950s design. It seems to me that if the LHA (R) class ship is built to have a lifespan of 50 years with no further R&D invested, then LHD–9 will be a 100-year old design when it is decommissioned in the 2050 timeframe. Would the Navy develop an aircraft carrier (CVN), destroyer (DD), or submarine (SSN) without a robust R&D effort?

Where is the R&D funding for a major amphibious ship like LHA (R)?

Are you not relegating the amphibious Navy to non-transformational status?

General WHITLOW and Admiral BALISLE. The Navy is currently conducting an AoA for LHA(R). Numerous alternatives are under consideration, including a LHD–8 repeat design. If the results of the AoA support a mod repeat LHD or new ship design, additional RDT&E funds will be required. At that time, it may be necessary to revisit the current plan to use the $10 million in fiscal year 2003 SCN AP for a LHD–9.

While the LHA(R) hull shape may be close to the original, its combat systems suite, communications gear and information technology set up will be state of the art.

WASP-CLASS LHD

34. Senator MCCAIN. General Whitlow and Admiral Balisle, last month, OSD Comptroller Dov Zakheim testified before the Senate Armed Services Subcommittee on Readiness and Management Support that the decision to begin funding LHD–9 in the fiscal year 2003 budget was "done completely in conjunction with the Navy." He also stated that he doesn't "like to blindside people. And [he] didn't blindside the Navy." General Whitlow, as the resource and requirements sponsor for amphibious ships, you no doubt were fully aware and closely involved with this decision. Given the fact that a *Wasp*-class LHD provides less lift capacity than the amphibious ship it would replace, would you please explain why Congress should support advance procurement for LHD–9? Admiral Balisle, would you care to comment?

General WHITLOW and Admiral BALISLE. As you are aware, the LHA(R) AoA is being conducted to determine the most suitable platform to replace the aging *Tarawa*-class LHAs. That study will report out in late June of this year. LHD is one of many of the alternatives being considered. If the advance procurement funding tied the Navy to a repeat, "straight stick" LHD design, it would indeed be predetermining the outcome of the AoA. However, I believe that the advanced procurement funding you are referring to will be utilized to conduct required R&D for the design determined to be best suited to replace the LHA and meet the requirements of expeditionary assault forces well into this century. That determination and decision is pending.

PURCHASING CRUISE SHIPS

35. Senator MCCAIN. Admiral Balisle, there are reports that the Navy is being approached to purchase a pair of unfinished cruise ships at the Northrup Grumman Shipyard in Pascagoula left behind when American Classic Voyagers went bankrupt for use as mobile housing or hospital ships. Is the Navy in anyway interested in purchasing such ships and is there a need for such ships?

Admiral BALISLE. A team of Navy engineers recently visited the partially completed passenger ships in Pascagoula, Mississippi, and concluded that the ships are not suitable for use as command and control ships due to their structural design and lack of military survivability features. We also looked at the ships' utility for

other non-combat ship missions. While the ships are viable with modifications for use as hospital, recreational or berthing vessels, the Navy does not have a requirement or need for any more of these ship types today. Accordingly, the Navy has declined the offer to acquire or use the cruise ships under construction.

QUESTIONS SUBMITTED BY SENATOR BOB SMITH

NAVAL SURFACE FIRES SYSTEM

36. Senator SMITH. Admiral Balisle, when the Navy in 1992 shifted to a "brown water" strategy from a "blue water" one, two Navy missions loomed large: providing our troops in the littoral with effective Naval Surface Fire Support (NSFS) and providing a forward presence show of force. The Navy has failed on both counts. In the meantime, we are in a state of war that could well bring us into a littoral conflict. All we would have is air support which often is too slow for tactical response and can be wiped out by bad weather (we saw both happen in Kosovo, for example). In a September 2001 interview, General Jones identified the "absence of naval gunfire" as the Marines' number one issue. I believe that the solution to both of these deficiencies is major caliber guns (12″ and above) and enough ship survivability for a visible show of force in high threat situations, which is especially important in our war on terrorism. What is the status of the NSFS in the mid-term, 3–7 years?

Admiral BALISLE. To address Marine Corps naval surface fire support requirements in the next 3–7 years (2005–2009), Navy is developing and fielding the following systems in the fiscal years indicated:

Fiscal Year 2002—The 5″/62-caliber Mk–45 Mod 4 gun is an improved version of the 5″/54-caliber gun and incorporates structural improvements to accommodate higher energies required to fire the ERGM. In addition to firing the ERGM, the Mk–45 Mod 4 gun retains the capability to fire the current inventory of conventional 5″ ballistic ammunition. The Mk–45 Mod 4 gun is presently being fielded in *Arleigh Burke*-class destroyers (DDG–81–112) and is programmed for backfit in *Ticonderoga*-class cruisers as part of the cruiser conversion program.

Fiscal Year 2002—Naval fires network (NFN) is being deployed to provide the network-centric infrastructure and processing capability (software and hardware) required to support carrier strike, surface strike, expeditionary, and fire support missions in support of joint, allied, and coalition forces. Its overarching goal, integrated with the distributed common ground station (DCGS) architecture, is to collect, process, facilitate fusion, and disseminate data from a variety of disparate, geographically separated, dissimilar joint sensors (including space-based sensors) and provide it to the warfighting community in a timely enough manner to identify, target, engage, and destroy enemy targets.

Fiscal Year 2003—Naval fires control system (NFCS) is being deployed to provide naval surface fires mission planning and fire-support coordination functions to support the extended ranges and precision accuracy of the improved Mk–45 Mod 4 (5″/62-caliber) gun, ERGM, and potentially advanced gun system (AGS) and ALAM. This system provides the path and coordination functions for bringing naval guns and land attack missiles into the realm of network-centric warfare by receiving and executing digital fire missions directly from marines and soldiers ashore, from the USA/USMC advanced field artillery tactical data system (AFATDS) ashore and afloat, and from the Naval Fires Network ashore and afloat. NFCS will be fielded in *Arleigh Burke*-class destroyers (DDG–81–112) and backfit in *Ticonderoga*-class cruisers as part of the cruiser conversion program.

Fiscal Year 2005—The ERGM is a 5″, guided, rocket-assisted projectile that is shot from a 5″/62-caliber gun. Using the global positioning system (GPS), ERGM receives target location and satellite information prior to launch. During flight, the ERGM receives GPS information and updates its inertial navigation system. ERGM far exceeds the current range of ballistic projectiles (13nm) through the use of rocket assisted propulsion, aerodynamic shape, glide and increased initial velocity provided by a high energy propulsion charge in a 5″/62-caliber gun. ERGM will be fielded in *Arleigh Burke*-class destroyers (DDG–81–112) and backfit in *Ticonderoga*-class cruisers as part of the cruiser conversion program.

In the longer term, beyond fiscal year 20O9, DD(X) with the advanced gun system/long-range land attack projectile (AGS/LRLAP) will bring objective level naval fires capability to the force.

37. Senator SMITH. Admiral Balisle, have you given consideration to re-activating the U.S.S. *Iowa* and U.S.S. *Wisconsin* to fulfill this critical task of national defense?

Admiral BALISLE. The Navy has considered the relative advantages of reactivating the two battleships, listed on the Naval Vessel Register. However, the battleships do not meet future USMC naval surface fire support (NSFS) requirements (attachment 1) for expeditionary maneuver warfare. The Navy has undertaken an alternative strategy to better address NSFS requirements generated by the new operational concepts of operational maneuver from the sea (OMFTS) and ship to objective maneuver (STOM). Future weapons and platforms will be expected to routinely support operations hundreds of miles inland. The battleships provide outstanding support up to 27 miles. The current concept of operations for expeditionary warfare requires a much greater range to support greater maneuver and lift capabilities of our modern Marine forces.

Two battleships (U.S.S. *Iowa* and U.S.S. *Wisconsin*) could not provide continuous world-wide, forward-deployed coverage, would not meet the emerging needs of warfare in the 21st century, and would be prohibitively expensive to operate, maintain, and support. Technology insertions required to upgrade battleships for interoperability with modern naval forces would be cost prohibitive. Battleships are manpower intensive and require more than three to five times the manning of a modern surface combatant. If reactivated, they would be unique in the fleet (unique weapon systems, engineering plants, training requirements, etc), and require an expensive infrastructure for support of only two ships. Therefore, reactivated battleships would compete for scarce funding with other critical surface Navy programs and reduce the total force capabilities available for littoral land attack operations. The high costs of operation, combined with limited battleship capability versus current USMC NSFS requirements, make battleship reactivation a high cost program of little military value.

The Navy is moving forward from World War II vintage battleship capability with the following plan for developing systems to address Marine Corps NSFS requirements and fielding those systems in the fiscal years indicated:

Fiscal Year 2002—The 5″/62-caliber Mk–45 Mod 4 gun is an improved version of the 5″/54-caliber gun and incorporates structural—improvements to accommodate higher energies required to fire the ERGM. In addition to firing the ERGM, the Mk–45 Mod 4 gun retains the capability to fire the current inventory of conventional 5″ ballistic ammunition. The Mk–45 Mod 4 gun is presently being fielded in *Arleigh Burke*-class destroyers (DDG–81–112) and is programmed for backfit in *Ticonderoga*-class cruisers as part of the cruiser conversion program.

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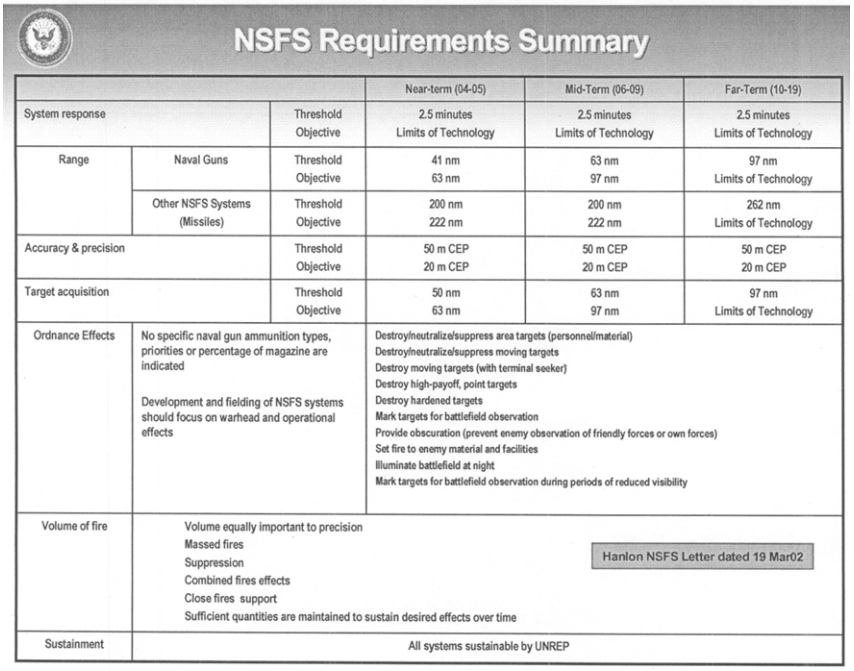
Fiscal Year 2004—The tactical Tomahawk (Tactom) weapons system provides a precision, all weather, unmanned, deep strike capability, and will greatly increase flexibility and responsiveness. The emerging requirement to engage targets from 100 to 200 nm will be met with the introduction of Tactom, as an interim NSFS missile solution. Tactom's loiter and enroute re-targeting capabilities provide support over extensive maneuver areas. New capabilities will include a two-way satellite communications link. This communications link will enable Tactom missiles to be redirected in flight. The data link will also enable the missile to report its in-flight status and anticipated impact accuracy. In addition, the missile will provide near real-time lookdown battle damage imagery enroute to its target.

Fiscal Year 2005—The ERGM is a 5″ guided, rocket-assisted projectile that is shot from a 5″/62-caliber gun. Using the global positioning system (GPS), ERGM receives target location and satellite information prior to launch. During flight, the ERGM receives GPS information and updates its inertial navigation system. ERGM, which

will achieve ranges over 50 nm, far exceeds the current range of ballistic projectiles (13nm) through the use of rocket assisted propulsion, aerodynamic shape, glide and increased initial velocity provided by a high energy propulsion charge in a 5″/62-caliber gun. ERGM will be fielded in *Arleigh Burke*-class destroyers (DDG–81–112) and backfit in *Ticonderoga*-class cruisers as part of the cruiser conversion program.

In the longer term, DD(X) with the advanced gun system/long-range land attack projectile (AGS/LRLAP) and an ALAM will bring objective level naval fires capability to the force.



NSFS Requirements Summary

			Near-term (04-05)	Mid-Term (06-09)	Far-Term (10-19)
System response		Threshold Objective	2.5 minutes Limits of Technology	2.5 minutes Limits of Technology	2.5 minutes Limits of Technology
Range	Naval Guns	Threshold Objective	41 nm 63 nm	63 nm 97 nm	97 nm Limits of Technology
	Other NSFS Systems (Missiles)	Threshold Objective	200 nm 222 nm	200 nm 222 nm	262 nm Limits of Technology
Accuracy & precision		Threshold Objective	50 m CEP 20 m CEP	50 m CEP 20 m CEP	50 m CEP 20 m CEP
Target acquisition		Threshold Objective	50 nm 63 nm	63 nm 97 nm	97 nm Limits of Technology
Ordnance Effects	No specific naval gun ammunition types, priorities or percentage of magazine are indicated Development and fielding of NSFS systems should focus on warhead and operational effects		Destroy/neutralize/suppress area targets (personnel/material) Destroy/neutralize/suppress moving targets Destroy moving targets (with terminal seeker) Destroy high-payoff, point targets Destroy hardened targets Mark targets for battlefield observation Provide obscuration (prevent enemy observation of friendly forces or own forces) Set fire to enemy material and facilities Illuminate battlefield at night Mark targets for battlefield observation during periods of reduced visibility		
Volume of fire	Volume equally important to precision Massed fires Suppression Combined fires effects Close fires support Sufficient quantities are maintained to sustain desired effects over time				
Sustainment	All systems sustainable by UNREP				

Hanlon NSFS Letter dated 19 Mar02

JOINT STRIKE FIGHTER VARIANT V/STOL

38. Senator SMITH. Admiral McCabe, I would like to get your response to a *Wall Street Journal* report and a Lexington Institute report. The reports state that the Navy may be considering a 37 percent reduction in the production and procurement of the Joint Strike Fighter (JSF) from 1,089 aircraft to 680. Perhaps this cut is driven by a desire to generate some sizeable cost savings as full production ramps up at the end of the decade. However, the reports raise the specter that the Navy may want to cut the Marine Corps V/STOL version of the JSF due to some questions about its perceived differences—fuel load, payload capacity, and so forth that were modified to get the V/STOL abilities. What is the validity of this report, and what is the Navy position on the Marine Corps V/STOL JSF variant?

Admiral MCCABE. In response to Defense Planning Guidance, the Department of the Navy has been hard at work on a study to analyze efficiencies and effectiveness of integration of Navy and Marine Corps tactical aviation. This study will provide valuable insight and a method to challenge our assumptions of the past in order to formulate a strategy for the future. The study's recommendations are under review by the Department of the Defense. It would be inappropriate to comment further until that review is complete.

SPACE USE

39. Senator SMITH. Admiral McCabe, what is the general status and intent of the Navy's plan for the use of space as an enabler and the defense of these assets that are becoming more and more important as we head into the era of netcentric?

Admiral MCCABE. In today's environment, naval forces have to think about many things in order to project power ashore: things like battle space characterization, target recognition, location and targeting, time critical strike, attack asset coordination and deconfliction, weapon selection, and then battle damage assessment.

The Navy information technology for the 21st century (IT21) initiative accelerates the transition to an intranet and PC-based tactical and support warfighting network, enabling the reengineering of Navy mission and support processes. This strategy provides secure and unclassified internet protocol (IP) network connectivity for mobile Naval forces using satellite communications (SATCOM), direct line of sight communication paths, and commercial IT hardware and software. This is a major step towards quickly achieving the goals and standards of the global information grid, and a quantum leap forward into creating the infrastructure necessary to embark on true network-centric operations and knowledge management.

The naval network is the convergence of afloat and ashore networks into a single, seamless network. This represents one of the first evolutionary steps towards transformation to network-centric operations. This network includes elements from the Marine Corps networks, Navy-Marine Corps intranet (NMCI) outside of the continental United States (OCONUS), and interfaces with the global information grid.

The bottom line, we have to use assets in space to support naval forces as well as forces ashore to provide high data rate communications, meteorological and oceanographic support, navigation, precise time and non-organic intelligence, surveillance, reconnaissance, and targeting (ISRT).

Ensuring the freedom of space and protecting U.S. national security interests in the medium are priorities for space use and space related activities. U.S. space systems are national property afforded the right of passage through and operations in space without interference in accordance with applicable U.S. and international law.

Purposeful interference with U.S. space systems will be viewed as an infringement on our sovereign rights. The U.S. may take all appropriate measures, including, if directed by the President and Secretary of Defense, the use of force, to respond to such an infringement on U.S. rights, in accordance with applicable U.S. and international law.

Consistent with applicable U.S. and international law, space control capabilities will be developed, operated, and maintained to ensure freedom of action in space for the U.S. and its allies and, if directed, deny such freedom of action to adversaries. These space control capabilities will include capabilities for protection, prevention, negation, surveillance of space and the supporting battle management, command, control, communications, computers, intelligence surveillance, and reconnaissance.

[Whereupon, at 4:36 p.m., the subcommittee adjourned.]